JULY, 1983

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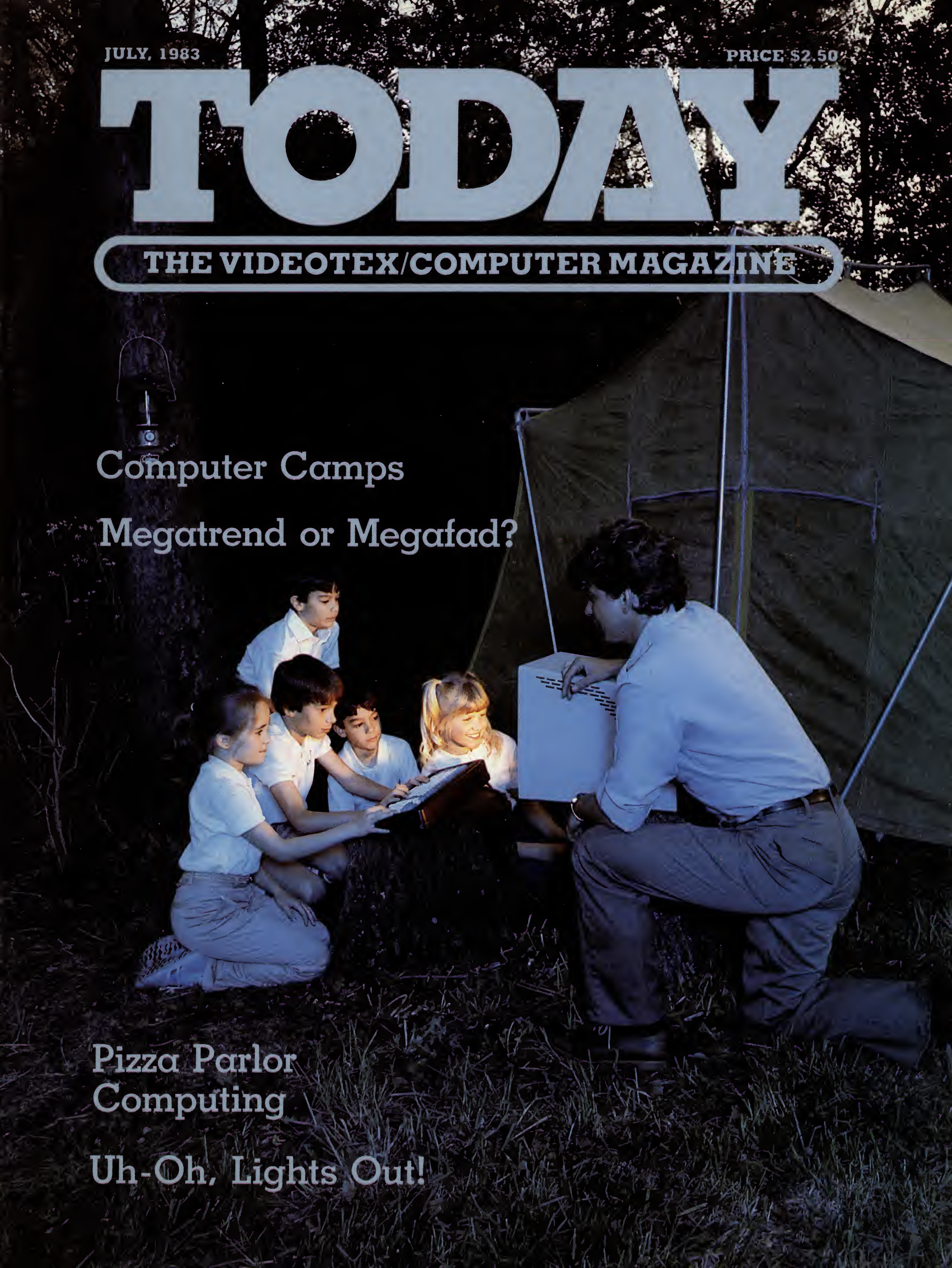
TODAY

THE VIDEOTEX/COMPUTER MAGAZINE



Computer Camps

Megatrend or Megafad?

Pizza Parlor
Computing

Uh-Oh, Lights Out!

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TODAY
THE VIDEOTEX\COMPUTER MAGAZINE

HOME

14 Computer Camps: Megatrend or Megafad?
When is a computer camp a computer camp? How do you know if you're getting your money's worth? And how do you choose a camp that's right for your child? This comprehensive report on the computer camp boom and a complete listing to camps in all 50 states will help in the decision-making.

22 A Directory to Computer Camps in the United States
A complete, annotated and cross-referenced guide to computer camps and summer programs in the United States.

26 Pizza Parlor Computing
The latest craze in recreational computing combines America's favorite new activity with its favorite food — pizza! Here's a closeup on a few American pizza chains that are using computers and robotics to create a multi-million dollar overnight sensation.

TECHNICAL/TUTORIAL

30 Uh-Oh, Lights Out!
If your computer is unprotected, it's too late after the lights go out. But there are some preventative steps you can take to condition your equipment to protect the machine and valuable data.

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The MicroSpooler from Consolink Corp.

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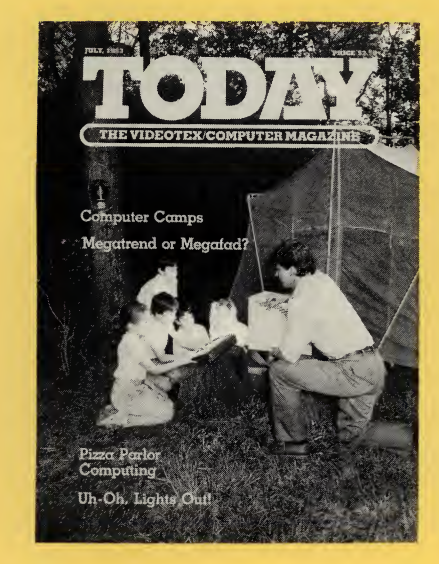

COVER
"Computer Camping"
This month, TODAY examines the "computer camp" phenomenon sweeping the nation.

Photo by Tim Courlas

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Letters

Please address your letters to CompuServe electronic mail, ID number 70003, 1372 or to: Editor, TODAY magazine, 5000 Arlington Centre Blvd., PO Box 20212, Columbus, OH 43220. TODAY reserves the right to edit letters for length, content and clarity.

Data Communications

Mr. Crispin's letter ("Data Communications" May, 1983) begs some response.

While it is true that telephone lines are slow, the telephone communications medium has several factors which do recommend it:

1. It is in place in a worldwide standardized format, and in every home and business. The same cannot be said for cable.
2. Telephone is now a two-way medium; cable is not. Conversion of most cable systems to two-way capability will be expensive and time consuming.
3. Cable, with its necessity for repeaters at rather frequent intervals, does not lend itself to the degree of reliability that we have come to expect of a communications medium. Each repeater requires power and most cable systems simply pick up this power from the local power company. Thus, a failure of commercial power at any point along the cable is likely to disrupt communications for the entire downstream segment of the system.
4. Economics may not favor cable as a viable alternative at this time. Either channel space or capacity would have to be sacrificed for baud rate. If entertainment programming can be sold, no cable operator is gong to swap this spectrum space for private communications space unless the return on the investment is better.
5. The speed which Mr. Crispin touts may be limited more by the ability of the host computer to handle many simultaneous tasks than the medium itself.
6. The conventional common carriers are loathe to step quietly aside and allow the invasion of their turf by these upstart cable companies. And regulators might be unwilling to embrace the concept of two competing common carriers serving every community.

No doubt cable systems will be enhanced to provide communication capability and the telephone companies (with deregulation) will move into high-speed data communications area aggressively. But Mr. Crispin cannot expect to get the advantages of high baud rate without having to pay a proportionately high fee. There ain't no free lunch.

Thomas Johnson
Troy, Ala.

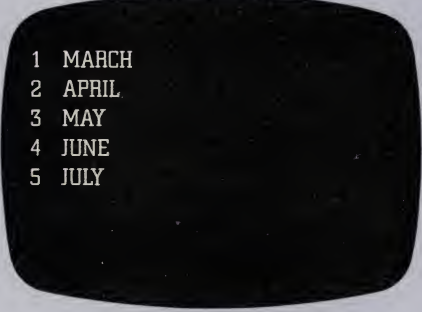
Electronic Bounce Back

Instructions/Tips

Step 1
To enter the Electronic Bounce Back program, choose item 11, User Information, or GO EBB.

Step 2
After the introductory information, you will be prompted for your name and mailing address.

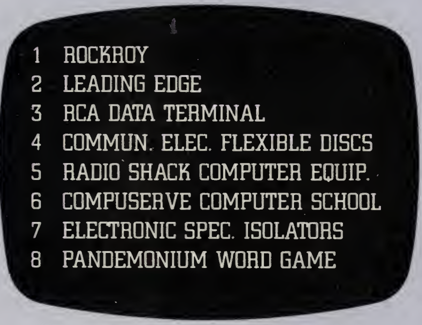
Step 3
A menu of available issues will then be displayed.



```
1  MARCH
2  APRIL
3  MAY
4  JUNE
5  JULY
```

Example:

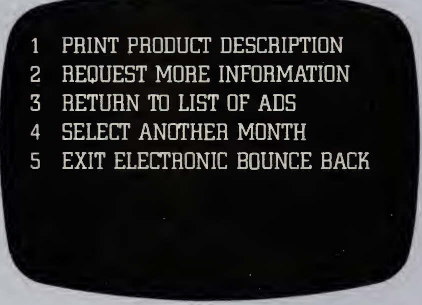
After entering the issue of your choice, a list of advertisers will appear.



```
1  ROCKROY
2  LEADING EDGE
3  RCA DATA TERMINAL
4  COMMUN. ELEC. FLEXIBLE DISCS
5  RADIO SHACK COMPUTER EQUIP.
6  COMPUSERVE COMPUTER SCHOOL
7  ELECTRONIC SPEC. ISOLATORS
8  PANDEMONIUM WORD GAME
```

Example:

Step 4
After choosing an advertiser, you will be shown the list of following options:

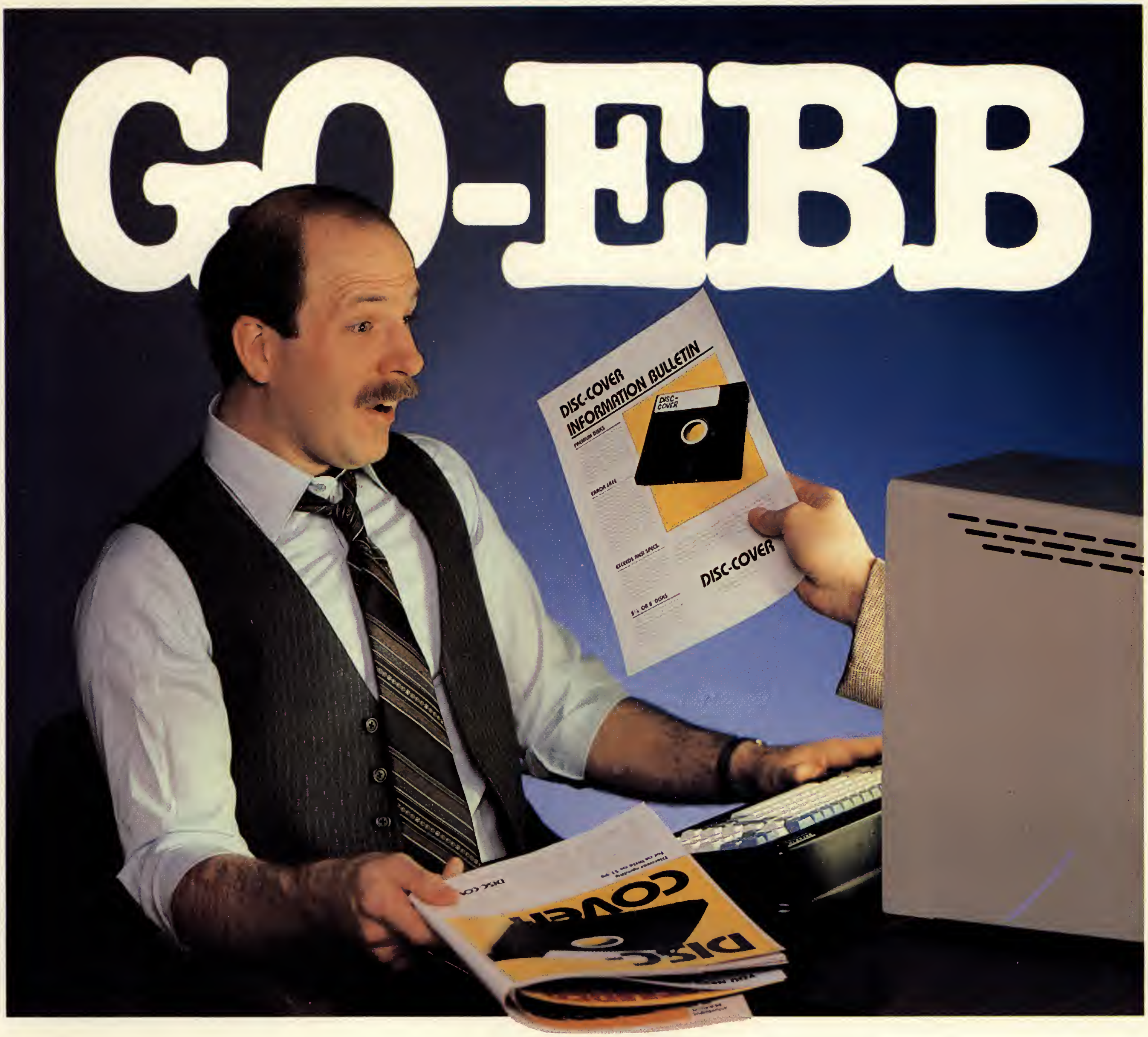


```
1  PRINT PRODUCT DESCRIPTION
2  REQUEST MORE INFORMATION
3  RETURN TO LIST OF ADS
4  SELECT ANOTHER MONTH
5  EXIT ELECTRONIC BOUNCE BACK
```

Step 5a
Selection 1 displays brief product descriptions.

Step 5b
Selection 2 sends your name, address and ID number to the selected advertiser. You will also be presented with a Comment option. You will be given three lines to make your request to the advertiser.

Step 6
After completing your request, the option menu (step 4) will be redisplayed.



Electronic Bounce Back puts you into direct contact with our advertisers.

When you respond to an ad in TODAY Magazine, you're "talking" directly to the advertiser. This means an end to the weeks of delay it takes for an ordinary reader service card to reach an advertiser (not to mention the additional time lapse for an advertiser to answer your inquiry once it is received).

EBB not only lets you respond to an ad with the usual name and address information, but it also allows you to ask for specific information, leave additional comments or in some cases even order a product. The advertiser in turn can reply, if so desired, through our electronic mail system, Email™.

TODAY is the first magazine to develop an "electronic" reader service and take advantage of the 2-way communications capabilities available through the use of videotex technology.

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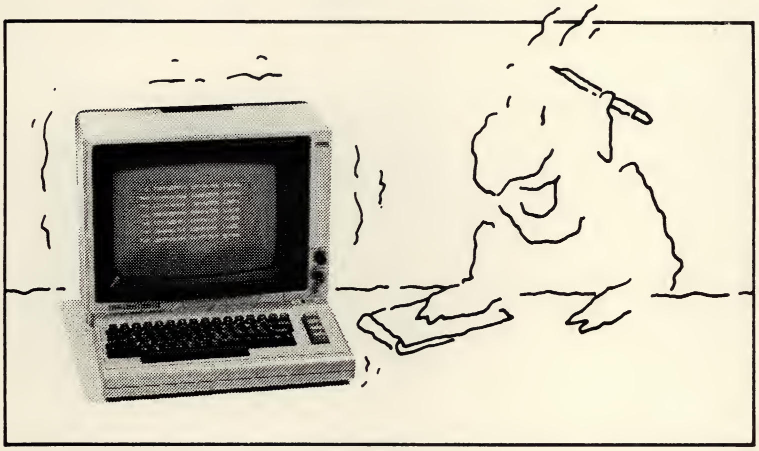

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Letters

Networking

I'm not so sure I agree with William Spencer ("Networks: Personal Links in the Electronic Universe," June) when he says believes computer networks will return autonomy and power to individuals.

I think he and everyone else cited in this article paint far too rosy a picture of networking while conveniently choosing to ignore the disastrous consequences. While the "WarGames" scenario may be a bit much, I do think there are serious issues of personal rights and privacy that were simply not addressed in this article.

Next time you publish an article on a subject such as computer networks, try talking to some people who can give well-rounded opinions of the subject without pinching their own pocketbooks!

Larry Selbers
Ann Arbor, Mich.

I've just finished reading the series of articles on "networking" and I don't think I've read a better description on both the human and technical aspects of this fascinating subject. I hope TODAY will continue to provide lively and in-depth articles on subjects that other "computer" magazines seem to ignore.

Richard Farb
Los Angeles

Subject Index Returns

At long last, the subject index has returned to TODAY magazine! I found the old subject indexes to be quite useful in finding new services on the system, but I find this handy reference guide to be even better.

Ben Kaufman
Jersey City, NJ

Note: The next subject index is scheduled to appear in August.

ULTRA
Diskettes

Now...Diskettes you can swear by, not swear at.

Lucky for you, the diskette buyer, there are many diskette brands to choose from. Some brands are good, some not as good, and some you wouldn't think of trusting with even one byte of your valuable data. Sadly, some manufacturers have put their profit motive ahead of creating quality products. This has resulted in an abundance of low quality but rather expensive diskettes in the marketplace.

A NEW COMPANY WAS NEEDED AND STARTED

Fortunately, other people in the diskette industry recognized that making ultra-high quality diskettes required the *best* and newest manufacturing equipment as well as the best people to operate this equipment. Since most manufacturers seemed satisfied to give you only the everyday quality now available, an assemblage of quality conscious individuals decided to start a new company to give you a new and better diskette. They called this product the *Ultra* diskette, and you're going to love them. Now you have a product you can swear by, not swear at.

HOW THEY MADE THE BEST DISKETTES EVEN BETTER

The management of *Ultra* Magnetics then hired all the top brains in the diskette industry to make the *Ultra* product. Then these top bananas (sometimes called floppy freaks) created a new standard of diskette quality and reliability. To learn the "manufacturing secrets" of the top diskette makers, they've also hired the remaining "magnetic media moguls" from competitors such as Verbatim, Memorex, Dysan and many more. Then all these top-dollar engineers, physicists, research scientists and production experts (if they've missed you, send in your resume to *Ultra*) were given one directive...to pool all their manufacturing know-how and create a new, better diskette.

HOW ULTRA DISKETTES ARE MANUFACTURED

The *Ultra* Magnetics crew then assembled the newest, totally quality monitored, automated production line in the industry. We know that some of Ultra's competitors are still making magnetic media on equipment that is old enough to vote. Since all manufacturing equipment at *Ultra* is new, it's easy for *Ultra* to consistently make better diskettes. You can always be assured of ultra-tight tolerances and superb dependability when you use *Ultra*. If all this manufacturing mumbo-jumbo doesn't impress you, we're sure that at least one of these other benefits from using *Ultra* diskettes will:

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2. **COMPLETE LINE OF PRODUCTS** - For a diskette to be useful to you and your computer, it must be compatable physically. *Ultra* Magnetics has an entire line of 5¼-inch and 8-inch diskettes.
3. **SPECIALLY LUBRICATED DISK** - *Ultra* uses a special oxide lubricant which is added to the base media in the production of their diskettes. This gives you a better disk drive head to media contact and longer head and disk life.
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7. **CUSTOMER ORIENTED PACKAGING** - All *Ultra* disks are packaged 10 disks to a carton and 10 cartons to a case. The economy bulk pack is packaged 100 disks to a case without envelopes or labels.
8. **LIFETIME WARRANTY** - If all else fails, remember, all disks made by *Ultra* Magnetics, (except bulk pack) have a lifetime warranty. If your *Ultra* disks fail to meet factory specifications, *Ultra* Magnetics will replace them under the terms of their warranty.
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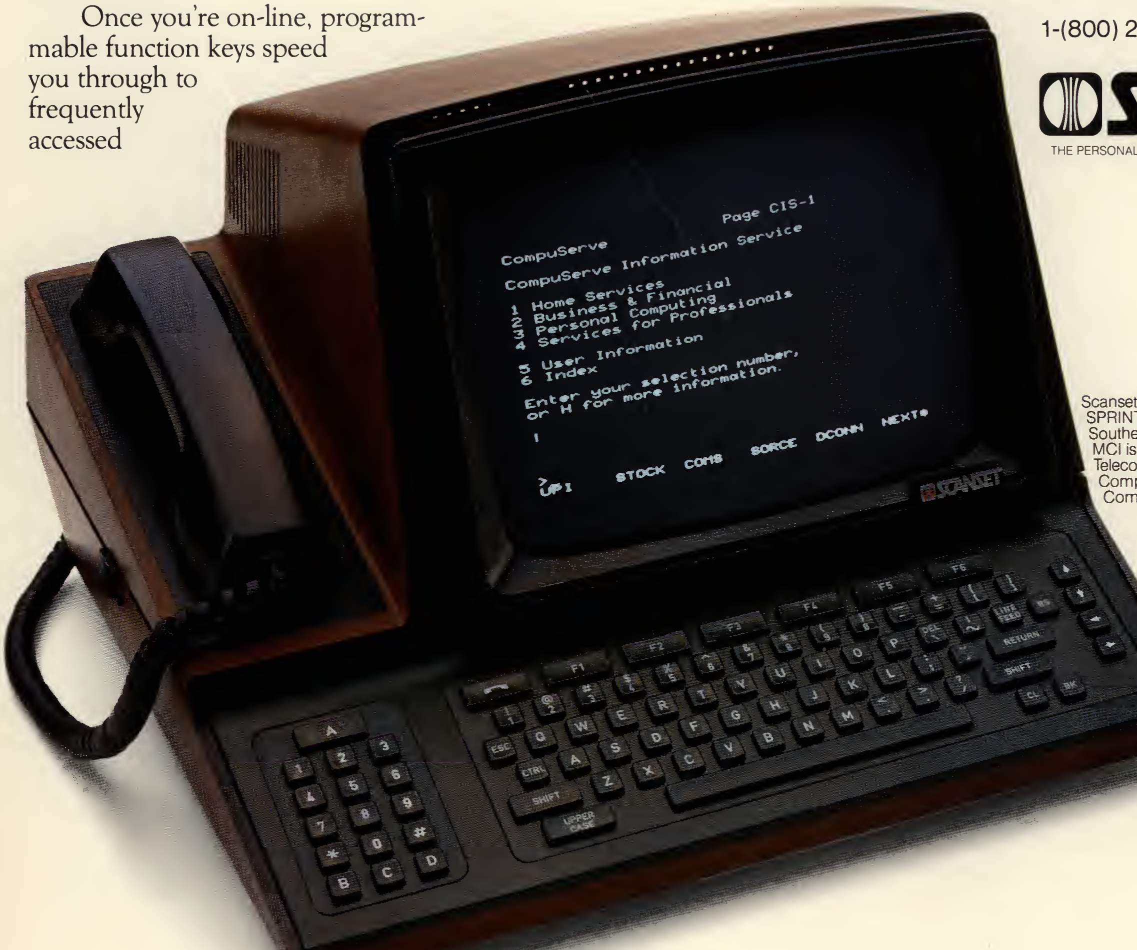

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Dear Reader,

The Computer Camp Phenomenon

When we planned this issue way back in September, we decided "recreation" would be the featured editorial subject and topic for our usual "social impact" cover article.

Well, that's fine, but "recreational computing" can mean a lot of things — from computer games (which we covered in May) to the use of micros in any number of recreational pursuits. As far as recreational pursuits go, there is even a videotex service available for people who want to swap yachts. Titillating, but hardly a subject of heavy social concern to the working class people of Micropolis.

We decided to focus on the "computer camp" phenomenon sweeping the nation and try to sort out some of the issues. For example, what is a computer camp? We know what it isn't. A computer camp isn't a climate-controlled computer room or smelly dorm on some university campus where participants take a short course in BASIC programming, play computer games and do little else. A true camp offers a balance of activities, including physical and social activity.

Is it a fad? Yes, in a sense. We agree with Champlain College Computer Director Shelley Richardson who says that the camps that will survive will offer all the aspects of what camping is all about. And we agree with American Camping Association President Betty van der Smissen who says many "camps" are really little more than specialized summer programs that do not make use of the natural environment or offer the opportunity for personal development in the way traditional camps have done. They have simply borrwed a word that packs special meaning and has a certain sentimental allure. And we agree with their assessment that the novelty of computers in camps will begin to wear off once the machines are integrated into most school systems.

Can we be hoodwinked by some of these "camps?" Definitely yes. Many are little more than glorified summer schools. Check carefully before you invest and make sure you're getting exactly what you expect. It may be that you and your child desire a strictly "school" atmosphere with few other activities included. If you're looking for a camp that has a mix of more traditional outdoor activities with the computer training, contact the camp directly and make sure it offers both. If possible, visit the camp and talk with the directors.

As a guide to help you make such decisions and contacts with computer camps, TODAY is pleased to offer a nationwide guide to computer camps, reprinted with the kind permission of Yellow Springs Computer Camp, Inc., publishers of The Computer Camp Book. The table lists most computer camps in the United States, organized by name, location, tuition, languages offered and contact information.

We trust you'll find the directory and accompanying article of great value in making decisions for and with your children about an important part of their life.

Douglas G. Branstetter
Editor

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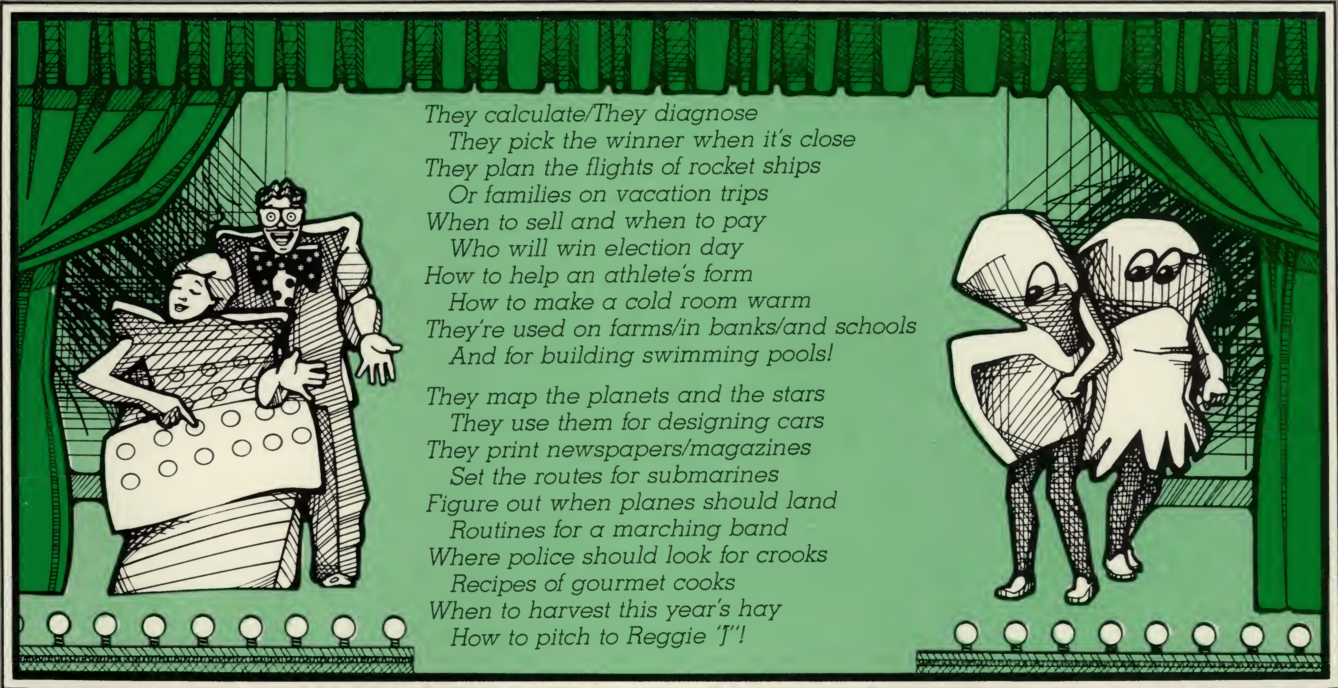

They calculate/They diagnose
They pick the winner when it's close
They plan the flights of rocket ships
Or families on vacation trips
When to sell and when to pay
Who will win election day
How to help an athlete's form
How to make a cold room warm
They're used on farms/in banks/and schools
And for building swimming pools!

They map the planets and the stars
They use them for designing cars
They print newspapers/magazines
Set the routes for submarines
Figure out when planes should land
Routines for a marching band
Where police should look for crooks
Recipes of gourmet cooks
When to harvest this year's hay
How to pitch to Reggie 'J'!

Illustrated Alaskan Moose

BITS AND BYTES COMPUTER THEATRE

Who are "they?" Computers, of course. This lyrical lesson is just part of a madcap musical excursion into computer technology for children. Titled "Bits and Bytes," this theatrical production was written and produced by the South Coast Repertory of Costa Mesa, Calif., as an educational tool designed to complement classroom instruction for children in kindergarten through eighth grade.

"The goal of 'Bits and Bytes' is to show the realistic capabilities of computers as distinguished from commercial hypes and science fiction fantasy," claims Michael Bigelow Dixon, who co-authored the script with Jerry Patch. "A second objective is to emphasize those talents unique to human beings — what it is that makes us different from computers."

Delightful characters, bouncy dances, catchy tunes, flashy costuming, and a Texas Instruments computer built into the stage combine to tell the story of Morton B. Norton, an overly zealous computer salesman who tries to land a naive, potential customer named Happy. Assisting in the sales pitch are Norton's trusty sidekicks — Bits, Bytes and Mr. Chips, plus an assortment of characters who explain a good deal about computers: What they are, how they work, what they can and can't do.

"What they can't do is a salient point of the production. Yet the irresistable urge to anthropomorphize computers is an understandable tendency," says Dixon. "Part reflex, part fancy, it is in no way indicative of any delusion on our part that computers are actually human. But given that more and more of us will be spending time around computers, it's still a distinction worth being reminded of."

The children in the audience learn this lesson from Happy and Mr. Chips:

> *Happy:* What made the computer explode?
> *Chips:* You asked it to work out of its mode. Your question was dealing, not with facts, but with feelings! Which explains the whole episode.
> *Happy:* But a lot of my problems are feelings!
> *Chips:* And those send the computer through ceilings. When you're sad or distressed, other people are best. They're friendly. They listen. They're healing.

Dixon believes the theatrical medium is a powerful one for teaching kids. "Entertainment is fast, and it keeps their attention while also giving them information. Theater is an excellent motivator for children, because it excites them about a topic, in this case computers, that mere classroom instruction cannot.

"Entertainment is the one feature that has probably done more for the image of computers than all the innovations and shrewd merchandizing put together," Dixon adds. "They cater to a human desire to participate, compete and control in a way television never could. And underlying their immense commercial success is their ability to satisfy our pragmatic concerns while simultaneously appealing to our love of gadgets and toys. Put simply, computers are the perfect product.

"And if computers are considered the perfect product, children might well be considered the perfect consumers," Dixon continues. "For the most part, children are curious, enthusiastic and more than willing to embrace the new technology. And given the current push for computer literacy in the schools, they are doing just that."

Like any fable, "Bits and Bytes" has a moral: Computers are neither threats nor panaceas; they are machines.

BRITISH HOMEOWNERS TURN TO VIDEOTEX

For the first time, British homeowners are subscribing to Britain's Prestel videotex service in significant numbers, indicating that home videotex may be gaining mass appeal.

Since the first of the year, Prestel's residential circulation has been growing at a faster rate than its business circulation. There are predictions that Prestel will pass the 10,000 residential subscriber mark during the summer. "This may not seem like a large number, but it is important to us," says Pat Montague of Viewtel 202, Prestel's electronic newspaper.

Growth of Prestel's domestic circulation may be encouraged by an experiment in regional service planned by Viewtel 202 for an area in England's Midlands. The trial, a partnership between Prestel and Viewtel 202, is a step towards developing a residential market strategy.

Called Club 403, the service will offer residential users a special selection of local services, plus the Prestel World Service, for four pounds (about eight dollars) a month. Access will be unlimited.

According to Montague, the increase in residential activity was triggered by a recent decrease in Prestel connect fees and user rates, and by the marketing of an inexpensive modem by the British firm Micronet, which allows users to receive Prestel on most home microcomputers. The result of these twin developments has been to bring Prestel into the financial range of the British home microcomputer user.

The sudden residential acceptance of Prestel is particularly significant since Prestel, the world's first videotex service, was originally intended as a home service but was forced to turn to business to find users.

COMPUTERS ON CAMPUS

The computer revolution, which has spread from businesses to homes, has now taken residence in dormitories.

Union College in Lincoln, Neb., is the nation's first liberal arts college to provide computer power and access in every dormitory room, according to Dr. Dean Hubbard, president.

Starting this fall, all 400 dormitory rooms at the 1,024-student college will be equipped with a Viewpoint computer terminal from Applied Digital Data Systems and linked with an on-campus Hewlett Packard 3000 Series 44 mainframe computer. In addition, printers will be placed on all dormitory floors and on-campus computer rooms will be available for nonresident students. The student/computer ratio at Union will be the highest of any liberal arts college in the nation, according to Hubbard.

"The students at Union and all college students should benefit from programs that build the computer awareness and literacy that are absolutely essential in today's business environment and changing lifestyle," says Hubbard. "All of our students will be required to take an entry-level computer literacy course and hands-on laboratory starting this fall to allow them to make the best use of their computer terminals."

Union plans to use its computer capability in five areas: as a tool for faculty, as a teaching aid, as an integral part of subject matter being taught, as an aid in learning, and as a tool for students.

Two of the most dramatic illustrations of the uses of the new system concern the college's completely-computerized library, scheduled to open in time for the fall semester, and papers and reports students are required to prepare for classes.

Union College students will be able to access library's "computerized card catalog" from their dorm room terminals. Once research is done and information gathered, students will prepare papers and reports utilizing word processing capabilities of the system. Professors will be able to review and grade reports on their own terminals, and transmit grades and comments back to the students.

The Massachusetts Instute of Technology (MIT) is the first university in the country to use an interactive electronic employment recruitment tool to match students with job opportunities.

Called Connexions, the software service being used on a computer terminal donated by Professional Data Corporation, publishes up-to-the-minute lists of employment help-wanted ads and allows computer users to communicate directly and electronically with prospective employers.

Robert Kvaal, president of Professional Data Corporation, explained that with MIT's new Connexions installation, graduating students can find better jobs faster. "Students can now correspond electronically with potential employers by sending resumes and cover letters, reply to prescreening questions, all while avoiding lines, sign-up sheets, travel, mail delays and complicated interview schedules," Kvaal says. Without waiting, students become familiar with and tie into the national job market, learning what's available, in what fields, what qualifications are necessary to get hired, and what salary ranges the industries will support. "For MIT students, Connexions is an educational, electronic medium with the added benefit of providing them with immediate access to these labor-intensive companies," Kvaal adds.

According to Robert Weatherall, director of MIT's Office of Career Counseling and Placement, "Over 400 companies visit the campus over the course of a year. Connexions is a cost-efficient alternative for matching students with jobs, avoiding what can be expensive road trips, staff shortages in home offices, and schedules that don't coordinate — all the while tying in a full complement of companies nationwide."

TIMES MIRROR OPENS GATEWAY TO INFORMATION

Times Mirror Company, publisher of the Los Angeles Times, will launch a commercial home videotex service in the greater Los Angeles area in the second quarter of 1984. If successful, customized versions of the service, called Gateway™, will be developed nationwide. However, no schedule for Gateway expansion beyond Los Angeles has been announced.

Gateway will be a localized service, featuring local news, sports, entertainment schedules and other information. It will use high-level alphageometric graphics, employing Canada's Telidon videotex technology. Gateway will start with a 50,000-page database including display advertising, a constantly updated electronic newspaper, home banking, electronic mail, educational programs and games.

Gateway was developed by Videotex America, a joint venture between Times Mirror and Infomart of Toronto, Canada, a supplier of Telidon videotex services and turnkey systems. According to Penny Jo Welsch, a spokesperson for Videotex America, charges for terminals, which will hook up to the user's color television, and for subscriptions have not been established.

Gateway will be a fully-interactive service. Terminals will have full keyboards, and many of Gateway's services will take advantage of the system's interactive power, such as on-line banking and shopping. News and public affairs sections will include surveys of users.

The interactive nature of the system also makes it an effective personal communication medium, offering electronic mail, teleconferencing, and computer games — both stand-alone and interactive.

In Los Angeles, Gateway will be a partnership between Videotex America and the Los Angeles Times. Videotex America has already announced agreements for similar partnerships with the Arizona Republic/Phoenix Gazette, Florida Times/Jacksonville Union, Sacramento Bee, San Francisco Chronicle, and Minneapolis Star and Tribune. None of these newspapers are part of the Times Mirror chain.

Partnership participation by the dominant local newspaper is considered vital by Videotex America, says Welsch, because Gateway is a local service and much of its database is local information. "The local newspaper is the best source for this kind of information," she says. "They have already gathered most of this at considerable expense. Gateway gives the newspaper a new outlet for this information, a new source of revenue."

Times Mirror is not the only communications industry giant to enter commercial home videotex in recent months. Late last year, Miami's Viewdata Corporation of America, a subsidiary of Knight-Ridder, announced plans to start a similar service called Viewtron, which is scheduled to debut later this year in the Miami area and expand nationwide within the next five years. CBS is presently involved in a home videotex trial in New Jersey in partnership with AT&T, but no plans beyond this trial have been announced.

INFOMART SPROUTS ROOTS IN U.S. AND CANADA

Grassroots, Canada's first financially-successful, fully-interactive Telidon videotex service, is about to come into the United States under partnerships being formed by its owner, Infomart of Toronto, and several large farm cooperatives.

Grassroots should be available in some regions of the United States by the end of this year, according to Leigh Sigurdson, Infomart spokesperson. The service will offer agribusiness information ranging from detailed weather forecasts to full, constantly-updated quotes from all the major commodities exchanges. It will also carry some games and other lifestyle services, but Sigurdson said Grassroots in the United States would put less emphasis on these areas than it does in Canada.

The service will be available at low cost. The only charge farmers pay is the communications cost per minute of actual time on the system. Grassroots does not charge a connect fee or membership fees for having the right to connect to it.

In Canada, Infomart is about to start establishing local connection services to its Winnipeg, Manitoba, database throughout Ontario, Alberta and Saskatchewan. Sigurdson expects to have the three provinces covered within three months and plans to have local call access and localized services throughout Canada within a year.

Grassroots is also adding several new services. The full listing of the Toronto stock exchange is now available on the service with constant, real-time updating. The Canadian Cattlemen's Association is supplying market information from its Canfax market. And a major Canadian bank is about to sign an agreement to offer telebanking through Grassroots.

The most significant expansion, however, is the planned addition of real-time quotes from major U.S. and Canadian commodities markets. Presently, quotes are delayed 15 minutes under an arrangement imposed by the markets. The real-time service will cost Grassroots more in charges from the markets. Therefore, Infomart plans to continue its delayed quote service, which is adequate for farmers, and offer the real-time service at an extra charge for commodities investors. The investors will get a standard package including the Mid-America Liquidity Database and a market analysis for their initial fee, and can add extra markets for additional charges.

NEW SERVICE AIDS SOFTWARE SHOPPER

PC Telemart Inc. of Fairfax, Va., has unveiled a new service for microcomputer users that promises to take the worry out of shopping for and buying software.

The service, which will soon be available to retail stores, is an on-line database containing information on more than 21,000 software packages, identifying their applications and publishers, with analysis and critical reviews on many of them. Through simple search procedures, users will be able to determine what software is available, obtain description information, and even order it electronically.

PC Telemart launched a market test with participating retailers in the Washington, D.C., area in May. A nationwide distribution of the service is forthcoming on a lease basis in the form of in-store booths complete with terminals and printers, or in a processor-only version for use with the store's own terminal and peripherals.

In addition, according to Richard Litsinger, president of PC Telemart, software problems or questions will be handled through an electronic "problem solving" bulletin board.

Litsinger says the PC Telemart service will be supported by the nation's first microcomputer software library. The PC National Software Library, also located in Fairfax, will house a collection of microcomputer software and the hardware necessary to demonstrate and evaluate the software packages.

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COMPUTER CAMPING

Megatrend or Megafad?

Tim Courlas

by Carole Houze Gerber

Soft winds whispered through the trees as children's voices united in song, their vacationing brains as soft and flabby as the marshmallows patient counselors speared on roasting sticks. Oh, some of crabbier adults might insist that a fossil be identified now and again. And an occasional camp director might force a few survival skills down reluctant young throats. But basically, in the fond memories of most adults, camps were places to escape the intellectual expectations thrust upon them from September until June. "No more learning, no more books," the cry went, "no more teachers' dirty looks."

In the years B.C. — Before Computers — a camper's most taxing mental challenge might have been deciding how to fill the boredom of a rainy, tent-bound afternoon. Many of the more than 10 million youngsters who attend summer camps continue to welcome them as a vacation from the rigors of education. But a growing number are choosing to spend their summers getting a headstart on technology at the dozens of computer programs that have been created in the past few years.

From the tiny residental camp on the Goshen (Indiana) College campus which accepts only 13 students each for two one-week sessions, to the seven Atari computer camps which enroll hundreds, computer camps are springing up faster than pup tents. And most, particularly in comparison to more traditional camps, are doing a booming business. Champlain College Computer Camp in Burlington, Vt., for example, filled every slot in its first session last year and by March, 1983, was completely booked for its second session. "We had to turn away hundreds of disappointed youngsters," says Director Shelley Richardson. Texas Instruments, which offers week-long day programs at schools and YMCA's in 24 cities, expects as many as 50,000 children in their summer sessions. Yet the American Camping Association's annual market survey for the 1982 season showed a decline — residential camps affiliated with the ACA were only 59 percent filled in 1982 (and only 62 percent filled in 1981). Hardest hit was New England, which had a drop in camp enrollment of 15 percent between 1981 and 1982.

Why are most computer camps full while four of six bunks remain empty at many of the more traditional camps? Dr. Betty van der Smissen, director of the Department of Health, Physical Education and Recreation at Bowling Green (Ohio) State University and former president of the American Camping Association, has some firm opinions. "It's a new thing, a novel thing," she says. "Once kids start getting computer training in schools as a matter of course, I don't think camps can continue unless they begin to develop beyond what the schools offer."

Camp Director Shelley Richardson, at Champlain College Computer Camp in Burlington, Vt., agrees. "It's a fad at this point. The camps that will survive are those that offer all the aspects of what camping is about. We worked hard to become accredited by the ACA our first year and offer a variety of high-quality activities. If computers become less important to our campers, we have many other interesting things for them to do."

Although some traditional camps have begun to integrate computers into their programs, others have decided to pass on offering a dose of the new technology. Malcolm Itkin, director of Kamp Kohut, an old, established boys' camp in Oxford, Maine, says while he uses a computer in the camp office, he's decided against offering them to boys in his program. "I really believe most children are sent to camp to be involved with other children. I know of camps that have a dozen computers and it's the 'in' thing. I'm not anti-computer," he explains. "But I believe kids can use a computer in their homes or schools. Their parents send them to camp to be outside in the fresh air. I don't see why anyone would come to Maine, the great outdoors, to stay inside and play on a computer."

Dr. van der Smissen, another proponent of the great outdoors, is critical of what she perceives as a lack of opportunity for personal development offered at many of the camps created specifically to offer computer training. "A good camp is an active camp," she asserts. "It makes use of the natural environment and offers children the opportunity to grow and develop in many ways. It's a place where a child can explore and be inquisitive. Camps offering a variety of experiences give children a selection whereas at some of the computer camps, the activity is limited. Some of us in the ACA object to the word 'camp,' when it's really just a specialized summer program. Many of them (computer camps) are on college campuses and they really aren't camps at all. We have the same argument in terms of sports camps where the kids stay inside a gym playing basketball all day.

"But," she sighs, "other words just don't have the lure of 'camp.' The connotation is that your child will have fun along with the other stuff."

> "The camps that will survive are those that offer all the aspects of what camping is all about."

The philosophy behind mixing computers and fun varies widely from one camp to another. At Champlain College Computer Camp, which strives for a 50/50 balance between recreation and computer time, the staff insists that campers participate in a variety of activities. "They learn socialization skills and master activities that have nothing to do with computers," claims Director Shelley Richardson. "If you take the approach that everything is optional — like recreation — the campers are going to take the same approach. But if you view the other activities as exciting and important, this attitude shoots contagiously through the kids. Some of the other camps don't act as though non-computing activities are very important and the kids respond accordingly. If you think kids are going to be eggheads and not interested in these other things, they'll oblige by living up to your expectations."

At National Computer Camps, on the other hand, Director Michael Zabinski believes that making recreation optional offers his campers exactly what they want. "Those who come to computer camp for computing have a chance to compute as much as they want, rather than being forced onto the ball field," he says. The three very successful National Computer Camps, located in the Northeast, Southeast and Midwest, feature a separate staff and director for a wide range of non-computer activities. Zabinski, a professor of Computer Science at Fairfield University in Connecticut, is the grand-daddy of computer camping. His Simsbury, Conn., camp, opened in 1977, was the first in the country. Zabinski's philosophy — the polar opposite of Richardson's at Champlain College — also seems to work. "I hate canoeing," a 16-year-old Massachusetts boy told a Boston Globe reporter touring a National Computer Camp last summer. "This is the first camp I've been to that's not boring."

Who attends and why

Most camp directors take pains to assure parents that campers are normal, down-to-earth children who just happen to have an interest in computers. Linda Gordon, executive director of Atari Computer Camps and vice president of special projects, likes to quote a 15-year-old female camper's reaction to her campmates at the Atari Camp in Stroudsburg, Pa. "I was sure they'd be Einsteins and nerds," the girl reportedly said. "But they're just regular kids like me." In her own words, Gordon describes Atari campers as "bright, interesting, and energetic. The kids who come to our camps are well-rounded children who have interests outside of computers."

Karen Eck, director of the Rocky Mountain Computer Camp in Boulder, Colo., says her campers differ only slightly from those attending more traditional camps. "They're a little more well-behaved and a little less mischievous," she reports. Shelley Richardson of Champlain College Computer Camp, believes her campers fit comfortably into a bell-curve. "About 10 percent are extremely capable, another 10 percent needed extra help, and the rest fall into the wide category of average ability. We expected a group of wizards our first season and instead found them to be typical kids."

Yet the camp director for Atari's Stroudsburg, Pa., camp told a reporter earlier this year that some of last year's campers scared him. "One kids used to buy *The Wall Street Journal* every morning," Tony Pellechio commented. "And another guy liked to talk about nuclear physics. . . . We're just trying to keep up with them." One way Atari is doing this is by cutting the maximum age of campers from 18 to 16. "We didn't want our camps to be summer schools," explains Atari's Gordon. "The older kids wanted summer school and we weren't willing to compromise our program."

According to Bill Mullins, a counselor at last year's first session of the Yellow Springs Computer Camp at Antioch College in Ohio, most campers were more interested in the mental challenge of computing than the physical challenge of sports. "They were generally independent and curious," he recalls. "But many had had a lot of negative experiences in gym classes. To give kids a break from computers and offer them a well-balanced experience, we provided equal time for physical activities. Given an opportunity to proceed at their own pace, all of them were able to enjoy physical release and acquire a number of new skills."

At Atari camps, which also split the day into physical and mental activities, Linda Gordon says, "We've tried to create a day that says 'balance.' Not only is it best for the child from a camping point of view, but it also maximizes the learning process." Still, many of the youngsters enrolled at the Yellow Springs, Atari, and other camps were more interested in computers than in the camping, hiking, team sports and crafts activities available at many of the summer programs. Consider the comments of Steven Teilhet, age 14, who attended the 1982 session at Yellow Springs: "Before I came to camp I was having trouble with string variables and I was confused on if-then statements. I learned about all that stuff at camp, and also learned about graphics, peaks, and lots of stuff about the keyboard. Now I can write my own programs."

Mike Stiles, a 10-year-old graduate of the Champlain College Computer Camp, was cited in the camp's off-season newsletter as the only student in his school who can work with BASIC statements through FOR-NEXT loops and random numbers. Sixteen-year-old George Gilbert of Manhattan is so enamored of computers that last year he brought his own machine to Computer Camp East, run by Computer Camps International, in East Haddam, Conn. For every precocious child quoted by the media, however, there are a dozen whose comments are simply too dull or too average to bother with. "The average kids don't make good copy," groused one camp director, "so some people who read about computer camps get the mistaken impression that maybe their kids aren't smart enough to attend. Most camps take children of all levels of experience and ability and then group them accordingly. Bright children aren't the only ones enrolled."

At Yellow Springs Computer Camp, for example, one slightly retarded 15-year-old boy was completely entranced with the program. When asked how much time each day he could stand to work with computers, he responded, "All the time I can get!" His favorite computer activities, he reported, were "writing up long programs in BASIC with math and figuring out teachers' pay at school." His father explains his son's love of computers this way: "He's always been a kid who likes to be by himself, in his own private world. Recently, he's been enthralled by maps. Computers give him the same kind of private world. He likes to manipulate things and his motor skills are a bit below par, so it's hard for him to use tools or blocks. He doesn't have that problem with computers."

Far from making his son feel inadequate, Yellow Springs Computer Camp boosted the child's esteem. "His self-confidence has improved a lot. He'd worked with computers about nine months before camp started. The computer camp gave him the opportunity to compare his computer skills with those of others and he came out favorably. I went to camp one afternoon to have lunch with him — I thought he might be lonely and have

ACA ACCREDITATION: The Seal of Approval

For nearly 50 years, the American Camping Association (ACA), has worked to develop, update and refine standards of excellence for all types of camps. Their program, which includes assessment of more than 160 factors in each camp, uses trained consultants who visit each camp to evaluate standards. The standards are designed to serve not only as instruments for ACA accreditation, but also as tools for self-education and self-evaluation by camp directors. Five broad areas are assessed: camper, program, staff, facilities and equipment, and supporting administrative services. About one-third of the camps evaluated are rejected for ACA accreditation. Many camp administrators, aware of high standards set by the ACA, never bother to apply.

While lack of membership in the ACA does not necessarily mean a camp is inferior, ACA accreditation is regarded as the official "stamp of excellence." The Associaton publishes a *Parents' Guide to Accredited Camps*, available through the American Camping Association, Martinsville, IN 46151 (phone: 317/342-8456).

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SSSD = Single Sided Single Density; SSDD = Single Sided Double Density; DSDD = Double Sided Double Density; SSQD = Single Sided Quad Density; DSQD = Double Sided Quad Density; TPI = Tracks per inch.

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no one to sit with. There he was, sitting in the corner having lunch with two red-heads. He was fine."

Selecting a camp

Choosing a camp — any camp — for your child is a little like shopping for temporary foster parents, says Cleveland child psychologist Jeffrey Ackerman. Ackerman, who has had 15 years experience as a camp counselor, has conducted workshops for the American Camping Association and others on the relationship between children, homes and camps. "Given the upheaval in the family today, camp directors and counselors offer children a different model of parenting," he explains. "While the child — especially the younger child — is at camp, he or she views the adults there as parent figures. Because counselors at residential camps live and work with kids 24 hours a day, the way they relate to children is critical. Particularly if the child's parents are unavailable or weird, the adults serve as models that prove there are other ways of relating."

Ackerman adds that the cost of many camps make them too expensive for large families. Consequently, many youngsters attending camp are only children or have just one sibling. "Camp forces children to learn to live in a group setting, to share, and to adapt to differences in background and tastes. For most children age eight and up, it can be a really significant growth experience," he explains.

Cost, location and length of sessions are the basic questions that must be answered before narrowing down the options. The day sessions offered in 24 cities by Texas Instruments are among the cheapest in the country with a price tag of only $60 for 10 hours of instruction. Atari's residential camps, which cost about $800 for two weeks, are at the high end of the scale but offer a smorgasboard of activities. Between the bare bones, non-camp environment offered by Texas Instruments and the opulence of an Atari setting are dozens of programs to suit the needs of most children. The National Computer Camp in Simsbury, Conn., even offers a one-week session specifically for diabetic children. Scheduled for the first week in August, the program is identical to the regular camp activities except for the team of physicians available to serve the special needs of diabetic children.

Many of the questions parents should ask in selecting a computer camp are the same for selecting any type of camp, says former American Camping Association President Betty van der Smissen. How many campers and counselors return each summer? How many counselors are former campers? What is the ratio of counselors to campers? Is there a rebate if the child leaves? What are the safety rules? Does the director have references? What does he or she do off-season?

Other standard questions include asking how long the camp has been in existence, how many campers and counselors return each summer, and whether the camp is accredited by the American Camping Association. However, because the majority of the camps, including those run by Ohio State University, Champlain College, Antioch College and Atari are only in their second season, these last questions often don't apply. (The camps run by Atari and Champlain College received ACA accreditation their first season.)

Specific factors to examine in selecting a computer camp, according to Arthur P. Michaels, administrative director for Computer Camps International headquartered in Vernon, Conn., include the following: Which computers are used? Is there sufficient equipment available? What are the qualifications of the instructors? What is the ratio of computer staff and recreational staff to campers? Is there a skill-building curriculum? How much "hands on" computer time is each camper guaranteed? Is the recreation program supervised by professionals

Zach Copely (top) and Paul Monaghan: "We're an industry now."

MEET TWO YOUNG PROGRAMMERS WITH THE 'VELVET TOUCH'

What software developers Zach Copley and Paul Monaghan, both 15, lack in age they make up for in enthusiasm and experience. Computers have been part of Paul's life since he was 11 years old, and Zach's familiarity with them dates back even further: His parents introduced him to a home-built machine when he was only five.

The Yellow Springs, Ohio, youngsters have been friends and fellow computer enthusiasts for years. Zach, son of Yellow Springs Computer Camp Director Tom Copley, says he and Paul decided to form their own software firm shortly after they were hired as teachers' aides at camp. Teaching spurred their interest in creating interesting, "kid-friendly" software, and because of its popularity, they initially focused on LOGO turtle robot commands. But, reports Zach, although their product was more powerful than other available software, the market was limited.

"We drifted away from that," he recalls, "and did a lot of other small programs such as graphics utilities, word processing, filing and databases. Now we're working on a computer graphics program called GEM — short for Graphics Editing Machine — which should be available by the end of the summer."

Although the software is directed toward children, Zach says anyone interested in graphics will find it extremely user-friendly. Paul adds that graphics was one of the most popular

"Left to their own devices, what many of the kids like most is playing games."

with an eye toward a balanced, fun summer?

Psychologist Jeffrey Ackerman urges parents to give children a voice in the final selection. "You can't expect an eight-year-old to make an intelligent decision between camp A and camp B," he says. "But, ideally, a parent can narrow the options and give the younger child some voice in the final decision. When the children become 12 or 13, though, they should have about a 75 percent voice in selecting an affordable camp."

Ackerman urges parents to be wary of computer camps directed toward helping children have a "leg up on the future" or a "headstart on careers." Reports of unenthusiastic children sent to computer camps because their parents think it's the right thing to do give him a "pain in the stomach," he says. "Parents should ask themselves, 'Am I sending my kid to computer camp so I can say he's there or to make her more marketable at age 20? Or am I sending my child because she really wants to go?' That's where the child's choice — given a series of options — is critical."

Examining staff and curriculum

Finding personable, skilled teachers is a year-round challenge for many computer camp directors. The traditional camp counselor hunting ground — college physical education and recreation departments — usually provide staff more experienced in softball than in software. "It's tough," agrees Atari's Linda Gordon. "The problem in this field is that it's moved so fast that there are very few people who embody the two talents of teaching and technical ability. We handle this by having on-site experts who teach the advanced program but who are available to help our skilled teachers who have less technical experience.

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camp programs — and with good reason. "If you start out with graphics, it eventually brings everything else in," he explains. "But if you start out doing little exercises, most kids get pretty bored and quit."

Boredom has never been a problem for either Paul or Zach, who spend anywhere from three to five hours a day programming. With access to the computer room at Antioch College — where they frequently offer free help to people three times their age — and terminals at home, they find plenty of opportunities to refine their teaching skills and their software. Both admit it wasn't always such a snap, though. "I wasn't any good when I started," says Paul, "so I spent a lot of time at it. Most people probably wouldn't want to put in as much time as I did. Also, I read a lot of books."

Zach adds: "I hope anybody who wants to start a software company really reads a lot of books. I've read over a hundred — maybe two hundred books — and I've gone back and reread a lot of them."

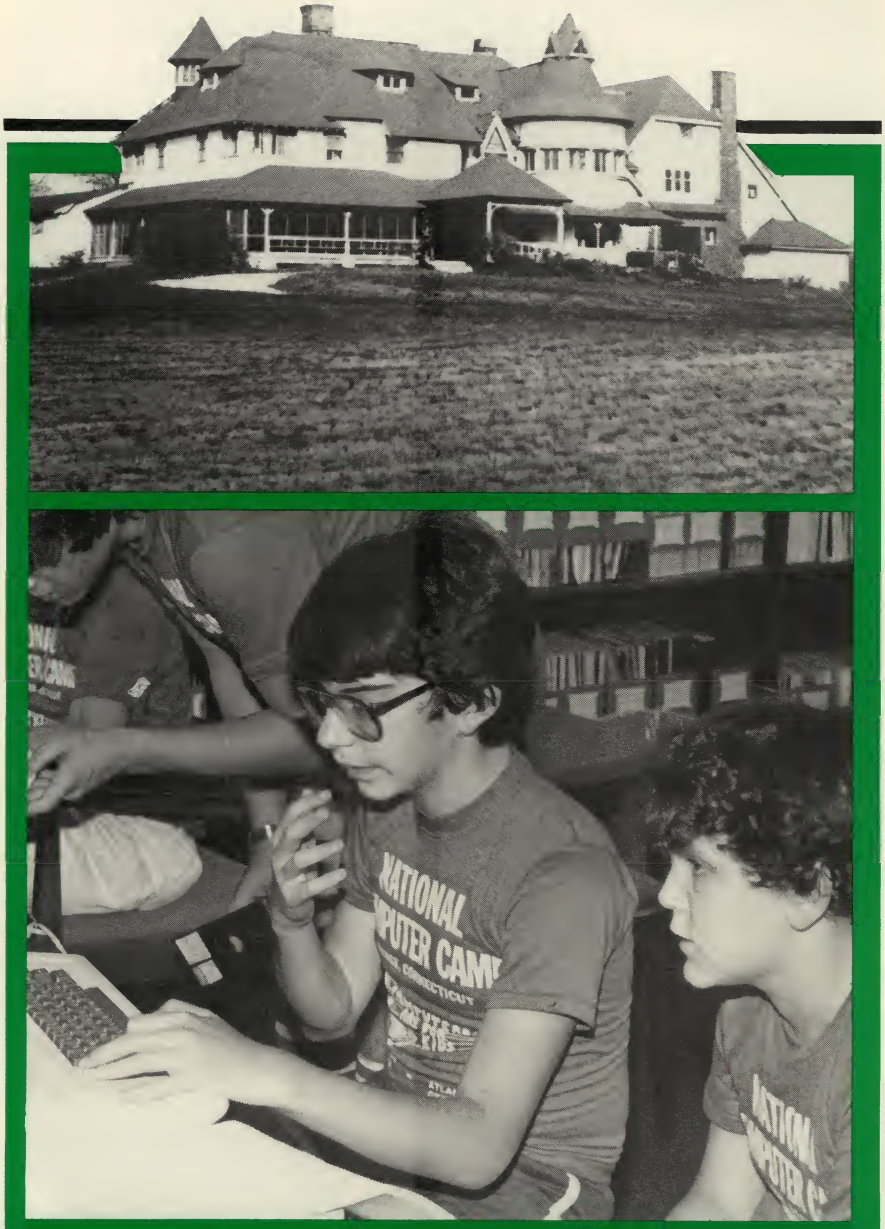
What they've learned not only benefits Yellow Springs computer campers and adults at Antioch's computer center, it may also help children at a nearby school become computer literate. The boys have talked with the principal at a Montessori school about teaching elementary students and feel hopeful that they may sign on as part-time instructors this fall. "We'll charge reasonable rates," says Zach, who says he and Paul also plan to teach again at the computer camp. "But we're gonna ask for a raise at the camp."

Not surprisingly, both plan computer careers — Zach as a consultant who can offer his clients "anything they need and want in a program," and Paul as a computer engineer who designs hardware. Presently, however, they share interests common to other youngsters their age — sports, cars and grandiose plans for the future. "We're an industry now," says Zach. "We're gonna be millionaires!" Paul, a basketball fan, is particular about the set of wheels he plans to own. "We'll drive around in velvet vans with TVs in them!"

Computers, they firmly believe, are the wave of the future. "I hope in ten years everyone will have computers in their homes," Paul says. "They're a good tool you can use for anything you want.

"And," he adds with a laugh, "the more people that have computers, the better off Zach and I will be."

For information about software developed by Zach Copley and Paul Monaghan, write: Velvet Touch, Department M, 549 Ridgecrest Cr., Yellow Springs, OH 45387.



Main building of the Hampton Computer Camp in Sag Harbor, N.Y. (top) and "campers" at the National Computer Camp: A fad or a new twist to an old tradition?

"But," she adds, "you don't have to be the best expert to be the best teacher. What's important is to combine enough of the technical information with the self-confidence to help children discover the necessary concepts."

Shelley Richardson, director of Champlain College Computer Camp, agrees. "We feel strongly that good teachers can teach anything," she says. "Although we look for people who've taught computer science, we look at other skills first. We don't really stress how many computer languages an applicant may know or whether he or she is an expert programmer. Our teachers can't go around being afraid that some of the campers know more than they do. In fact, last season a couple of the kids did know more than the instructors — but the instructors helped to motivate these children to work.

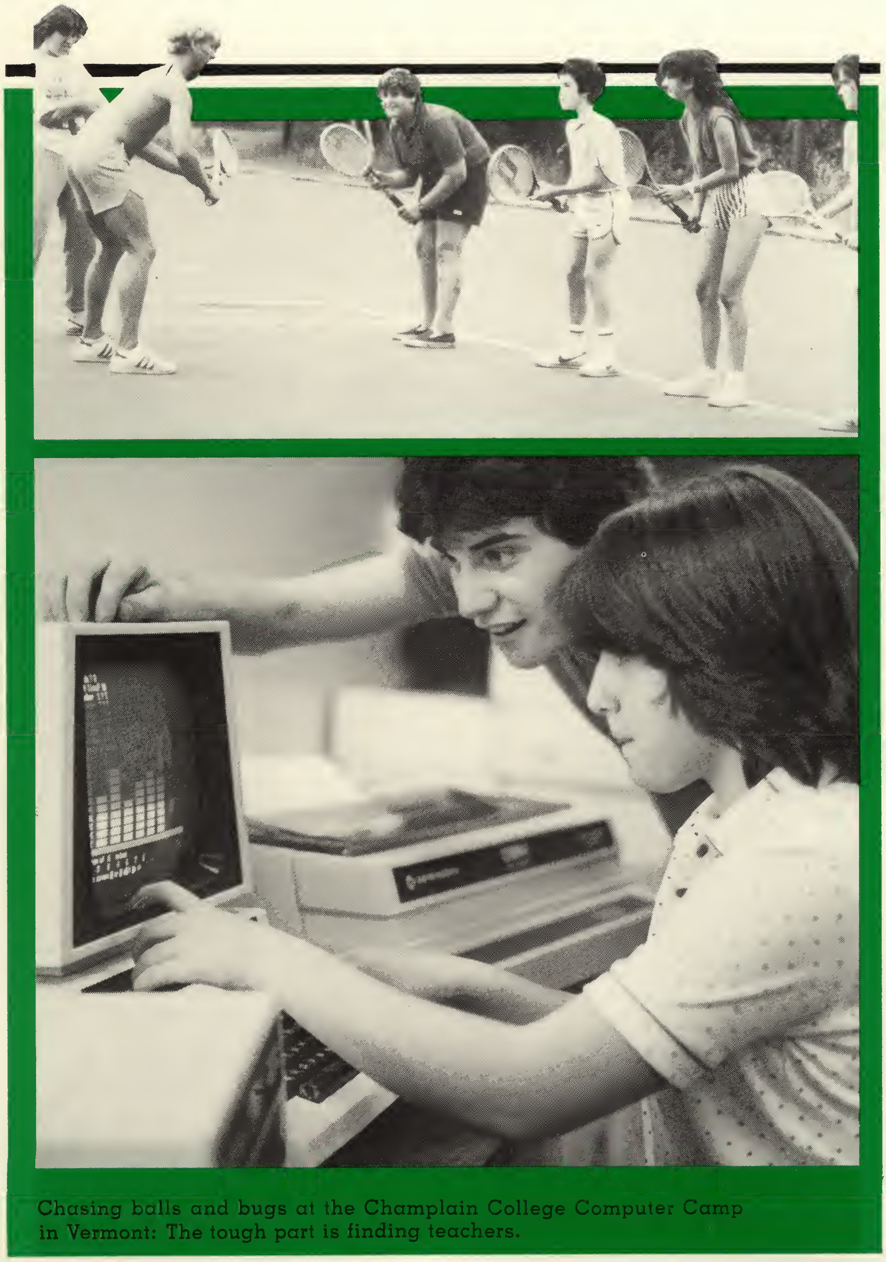
"It would be great to find that special person who knows programming and can also teach sailing and tennis. But those people are still rare, although there are more and more college students with a background in both sports and computers," Richardson comments. "We're most concerned with finding people who love to work with kids."

In addition to contacting colleges throughout New England, Richardson also searched for elementary, secondary and college teachers to round out her staff. "I'm glad now I spent so much time selecting staff and checking their references last year," she says. "They all worked out wonderfully and most of them are coming back this year."

Tad Mutersbaugh, 23, is fairly typical of many of the counselors hired by computer camps. He's had one college course each in BASIC and FORTRAN and has had experience devising instructional lab exercises. An instructor at last summer's first computer camp at Yellow Springs, Mutersbaugh says he enjoys working with children and believes learning about computers will make their lives easier. Teaching, he recalls, was fulfilling but sometimes exhausting. "I got burned out sometimes when I over-promised and had to stay up all night trying to make something work because I told a kid I'd help him make a game. But otherwise, I loved it."

In addition to adult counselors, Yellow Springs Computer Camp harnassed the energy and enthusiasm of advanced campers and used them as teaching aides. The comments of 11-year-old Mike Brown, who has worked with computers for two years, indicate that, regardless of ability, most computer campers still sound like regular kids. Mike enjoyed being an aide, he said, because he "got to show people stuff." His only problem was physical, not mental. "I felt like I was too short when I worked with the older kids," he sighed.

What exactly, technology-shy parents might wonder, do children *do* all day at computer camps. Recreational opportunities aside, most spend from five hours — the norm at most camps — mastering Assembler, BASIC, LOGO, Pascal or PILOT (usually BASIC) and applying what they've learned in a variety of ways. And while most camps will take students of all ages and abilities, a few are looking for very specific types of youngsters. At Camp Retupmoc ("computer" spelled backwards) in Terre Haute, Ind., students must have just completed the 11th grade and scored at least 550 in the math portion and 500 on the verbal on their SATs. Serious students indeed, Retupmoc campers are guaranteed up to 18 hours on com-



Chasing balls and bugs at the Champlain College Computer Camp in Vermont: The tough part is finding teachers.

puters.

Phrases that crop up repeatedly in camp literature include teaching children to use the computer as a creative tool, guaranteeing "hands-on" instruction, and "maximizing learning" in a "fun atmosphere." But, left to their own devices, what many of the kids like most is playing games. At Michael Zabinski's National Computer Camps, where outdoor recreation is optional, many spend the sunny afternoons playing video games like *Star Blastero Nova* and *Thief*. Zabinski says the staff discourages the "addictive passivity" of game playing and instead helps the campers to understand the machine's workings, to program it, and to actively use the computer as a problem-solving tool.

Linda Gordon says Atari Camps views games as a starting point for learning. "It's the only computer experience many of the children have had," she points out. Fred Hickler, a teacher at the Yellow Springs Computer Camp, believes that many video games are based on sophisticated physical, mathematical or geometric principles. "The behavior of the spaceship in *Asteroids* is almost the same as LOGO's dynaturtle," he says. "The graphics in *Battlezone* — a game in which one has the point of view of being inside a tank looking out through a field of tetrahedrons — can be considered a powerful study in perspective and solid geometry. The question is not how to eliminate the desire to play these games, but how to harnass it and creatively re-direct it."

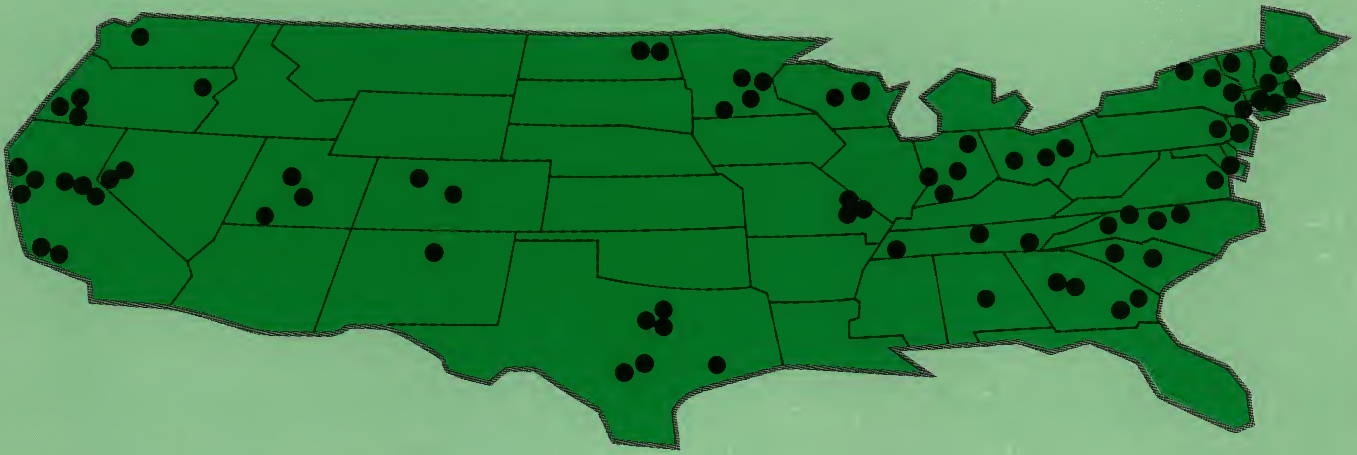
Hickler cites the case of young Yellow Springs camper who arrived with no prior computer experience. Using BASIC, he was guided in creating a game which created a trail of dots on the screen which the player erases by moving a single dot on top to erase them. If the player moves the erasing dot too quickly, the dot trail won't disappear. "The child saved it on his disk under the name 'Dot-Eat'," recalls Hickler, "announcing that he would sell it to Atari and make a lot of money. After that experience, none of the pre-programmed disks we had were good enough for him."

In addition to being grouped by experience and ability to learn programming concepts, students at the various computer camps might also be introduced to software which includes word processing, electronic worksheets and file managers, and a mailing list program (all offered at Atari camps). Graphics tablet and computer music software are also available at some of the camps. Many offer field trips to such places as IBM and invite computer experts to speak with campers.

The specifics of what computer campers learn is, in the end, probably secondary to the personal satisfaction that a good program can provide. Child psychologist and camp expert Jeffrety Ackerman says that, regardless of their intellectual level, all children share the same emotional needs. "They need a sense of being cared for, a feeling of being wanted and of being respected for who they are," he explains. "A good camp environment will help children feel good about themselves." Yellow Springs counselor Tad Mutersbaugh describes beautifully the joy that a positive computer camp experience provides: "Children's fingers reach for the keyboard and their faces light up in amazement at that which I take for granted. The human/machine interface is truly an incredible achievement."

Carole Houze Gerber is a contributing editor of TODAY.

A DIRECTORY OF COMPUTER CAMPS IN THE UNITED STATES



The following is a list of computer camps in the United States reprinted courtesy of the publishers of the Computer Camp Book, by Laura Littell and Fred Hickler. For more information on the book, see page 39

STATE	NAME LOCATION	TUITION	LANGUAGES	INFORMATION
AL	**The University of Alabama Computer Camp for Kids** South Birmingham, Alabama	Approximately $250 per one of five two-week day sessions	BASIC, Pascal	Tommy Ash, director, The University of Alabama at Birmingham, Special Studies, 917 11th St., South Birmingham, AL 35294, Phone: 205/934-3870
AZ	**Arizona Computer Camp** Near Mingus Mountain in North Central Ariz.	$245 for one of five one-week residential sessions; scholarships	BASIC, Pascal, LOGO	Dr. Henry Dahlberg, director, Arizona Computer Camp, 2946 Darca Dr., Prescott, AZ 86301, Phone: 602/445-3778
CA	**Atari Computer Camps** Danville, Calif. (Other locations: Greenfield, Mass.; East Stroudsburg, Pa.; Glencoe, Md.; Asheville, N.C.; Faribault, Minn.	Call 800/847-4180 (New York State call 212/889-5200)	BASIC, PILOT, LISP, Pascal	Mike Sparber, executive director, Atari Computer Camps, 40 East 34th St., New York, NY 10016, Phone: 800/847-4180
	The Computer Era Camp Covina, Calif.	$110 per week, summer-long day camp sessions	BASIC	Joyce Bender, director, The Computer Era, 536 S. Second Ave., Suite E, Covina, CA 91723, Phone: 213/331-5302
	Data Base Computer Camp In the Sierra foothills, south of Lake Tahoe	Contact for prices for two residential sessions, 2 or 3 weeks each	BASIC	Valerie Abad, director, Data Base Computer Camp, 6454 Valley View Rd., Oakland, CA 94611, Phone: 415/339-2961
	The Original Computer Camp, Inc. Santa Barbara, Calif., Sequoia, Calif., Lake Tahoe, Nev. Additional camps in Hawaii, Colorado and New Hampshire	$795 for two-week residential session (five sessions offered)	BASIC, Pascal, LOGO. Also, Robotics is taught with the aid of a Terrapin turtle and a computerized arm	Dennis Bollay, director, The Original Computer Camp, Inc., 1235 Coast Village Rd., Suite G, Santa Barbara, CA 93108, Phone: 805/969-7871

STATE	NAME LOCATION	TUITION	LANGUAGES	INFORMATION
CA	**Computers for Kids** University of California at Santa Cruz; Lake Tahoe, Nev.; Bend, Ore.; Kauai, Hawaii	Contact for prices for one, two or six week residential sessions	BASIC, LOGO, Pascal	George Guess, director, Computers for Kids, 980 Magnolia Ave., Larkspur, CA 94939, Phone: 800/227-2866
	Timber Tech 30 miles south of the Silicon Valley	$895 for one of several two-week residential sessions	Two levels of BASIC, LOGO, Pascal, PILOT, Assembler	Lori Kish, director, Timber Tech Computer Camp, 3192 Glenn Canyon Rd., Scotts Valley, CA 95066, Phone: 408/436-3339
CO	**Rocky Mountain Computer Camp** Near Rocky Mountain National Park	$400/one wk. residential session, $785/two-week residential session	BASIC, LOGO, Assembler	Karen Eck, director, Rocky Mountain Computer Camp, Boulder Computer Resource Center, 1005 Pearl St., Boulder, CO 80302, Phone: 303/442-6228
	The Original Computer Camp, Inc. Whiteman School, Steamboat Springs, Colo.	See California listing for details		
CT	**Computer Camps, International** East Haddam, Conn.; Whitewater, Wis.; Denton, Tex.; San Antonio, Tex. and Oxford, Ga.	$835/per two-week residential session; several sessions available	BASIC, LOGO, PILOT, Pascal	Dr. Arthur Michaels, director, Computer Camps, International, 310 Hartford Turnpike, Vernon, CT 06066, Phone: 203/871-9227
	National Computer Camps Simsbury, Conn.; Atlanta, Ga.; St. Louis, Mo.; McMinnville, Ore.	Call 203/795-9667	All levels of BASIC, Pascal, Machine Language	Dr. Michael Zabinski, director, National Computer Camps, P.O. Box 585, Orange, CT 06477, Phone: 203/795-9667
GA	**Computer Camps, International** Oxford, Ga.	See Connecticut listing for details		
	National Computer Camps Atlanta, Ga.; Simsbury, Conn.; St. Louis, Mo.; McMinnville, Ore.	See Connecticut listing for details		
HI	**Computers for Kids** Kauai, Hawaii; Bend, Ore.; Lake Tahoe, Nev.; Santa Cruz, Calif.	See California listing for details		
	The Original Computer Camp, Inc. Hawaii Preparatory Academy, Kona, Hawaii	See California listing for details		
IL	**Lake Forest Computer Camp** On the campus of Lake Forest College, Lake Forest, Ill.	$350 for one of six one-week residential sessions	BASIC, Pascal	Lowell Carmony, director, Lake Forest Computer Camp, Lake Forest College, Lake Forest, IL 60045, Phone: 312/234-3100
IN	**The Computer Experience** Located on the Ball State University campus in Bluffton, and the University of Evansville in Evansville, Ind.	$395 for one of three one-week residential sessions	BASIC, LOGO, PILOT, Pascal	Laverne Ludder, director, The Computer Experience, Performance Design, Inc. 1411 N. Main St., P.O. Box 124, Bluffton, IN 46714, Phone: 219/824-5120
	Goshen College Computer Camp Goshen, Ind.	$150 for one of two one-week residential sessions	BASIC, Pascal	Ed Epp, director, Goshen College Computer Camp, 1700 S. Main St., Goshen College, Goshen, IN 46526, Phone: 219/533-3161
	Camp Retupmoc Rose-Hulman Institute of Technology, Terre Haute, Ind.	Approximately $220 for one of six one-week residential sessions for students who've completed 11th grade	BASIC, APL	John Kinney, director, Camp Retupmoc, Rose Hulman Institute of Technology, 5500 Wabash Ave., Terre Haute, IN 47803, Phone: 812/877-1511
IA	**The Computer Camp at Yellow River Station** 11 miles west of Prairie du Chien, Wisconsin	$199 for one of nine one-week residential sessions (seven sessions for boys; two for girls)	BASIC, Assembler	John K. Smola, director, Computer Camp, Yellow River Station, Monona, IA 52159, Phone: 319/539-2425
	Luther College Computer Camp Decorah, Iowa	Approximately $200 for one of four one-week day sessions	BASIC, Pascal, FORTRAN, Assembler	Craig Cornelius, director, Luther College Computer Camp, Dean's Office, Luther College, Decorah, IA 52101, Phone: 319/387-1005

STATE	NAME LOCATION	TUITION	LANGUAGES	INFORMATION
MD	**Atari Computer Camps** Glencoe, Md.	See California listing for details		
MA	**Atari Computer Camps** Greenfield, Mass.	See California listing for details		
	Cambridge Computer Camp ABT Research Park, Fresh Pond, Mass.	$300 for one of two, two-week day sessions	BASIC, Pascal, LOGO	Betty Kennedy, director, Cambridge Computer Camp, 55 Wheeler St., Cambridge, MA 02138, Phone: 617/492-7100
	Classroom Computer News Computer Camp Watertown, Mass. (Boston College Campus)	$475 for one three-week day session	BASIC, LOGO	Henry Olds, director, CCN Computer Camp, 51 Spring St., Watertown, MA 02172, Phone: 617/923-7707
MN	**Atari Computer Camps** Fairibault, Minn.	See California listing for details		
	CompuCamp Bethel College, St. Paul; Minnehaha Academy, Minneapolis; Edina Community Center, Edina	$390/one week; $790/two weeks residential sessions; day camp, $150/week	BASIC, Pascal, LOGO	Kathryn Thomas, director, CompuCamp, Inc., 7101 York Ave. S., Edina, MN 55435, Phone: 612/835-0064
MO	**Computers For Kids** St. Louis, Mo.; University of California, Santa Cruz; Lake Tahoe, Nev.; Bend, Ore.; Kauai, Hawaii	See California listing for details		
	National Computer Camps St. Louis, Mo.	See Connecticut listing for details		
NV	**Computers for Kids** University of California, Santa Cruz; Bend, Ore.; Kaui, Hawaii; St. Louis, Mo.	See California listing for details		
NH	**The Original Computer Camp, Inc.** Lake Winnipesaukee, N.H.	See California listing for details		
NY	**Computer Day Camp** At The Masters School (Dobbs Ferry, N.Y.)	$300/two weeks; $600/four weeks; $800/six weeks. Day sessions only.	LOGO, BASIC	Jim Finger, director, Masters School, 49 Clinton Ave., Dobbs Ferry, NY Phone: 914/693-1400
	Family Computer Camp Clarkson College Campus, Potsdam, N.Y.	Day and residential programs, three one-week sessions; contact for cost per family size	LOGO, BASIC, Pascal, FORTRAN	Estella Bray, director, Family Computer Camp, Clarkson College, Potsdam, NY 13676, Phone: 315/268-6647
	Hampton Computer Camp Tuller School on 50 acres at Noyac Bay	$800 for one of four two-week residential sessions	LOGO, BASIC, Pascal	Susan Stadler, director, Hampton Computer Camp, P.O. Box 166, Sag Harbor, NY 11963, Phone: 516/725-1234
	Marist College Computer Camp Poughkeepsie, N.Y.	Call for details; three two-week residential sessions	BASIC, APL	Lawrence W. Menapace, director, Marist College Computer Camp, Poughkeepsie, NY 12601, Phone: 914/471-3240
NC	**Atari Computer Camps** Ashville, N.C.	See California listing for details		
	Computer Camp for Children On the campus of the University of North Carolina at Greensboro	Contact camp for cost of one-week day sessions	BASIC	Dr. Kathy B. White, director, Computer Camp for Children, 100 Foust Building, University of North Carolina, Greensboro, NC 27412, Phone: 919/379-5414
	Duke University Computer Kamp (DUCK) Durham, N.C.	Under $650 for two week residential sessions; under $250/two week day sessions	BASIC, Pascal	Dr. Kevin Bowyer, director, DUCK, Duke University, 107 Bivens, Durham, NC 27708, Phone: 919/684-6259
	Physics and Microelectronics Computer Camp On the Appalachian State University campus, Boone, N.C.	Less than $400 for two-week residential sessions	BASIC. Also lab on Machine Language.	Dr. Tom Rokoske, director, Physics and Microelectronics Computer Camp, Dept. of Physics and Astronomy, Appalachian State University, Boone, NC 28608, Phone: 704/262-3045
	Western Carolina Summer Computer Camp On the Western Carolina University campus, Collowhee, N.C.	Contact for prices for Pascal workshop, a three-week residential session and regular one-week residenial sessions	BASIC, Pascal	Dr. Charles Martin, director, Dept. of Mathematics and Computer Science, Western Carolina University, Cullowhee, NC 28723, Phone: 704/227-7245

STATE	NAME LOCATION	TUITION	LANGUAGES	INFORMATION
OH	**Ohio State University Computer Camp** On the campus of Ohio State University, Columbus, Oh.	$675 for two-week residential sessions	BASIC, Pascal, Assembler	Joe Oshins, director, Computer Camp, Ohio State University, Office of Continuing Education, 2400 Olentangy River Rd., Columbus, OH 43210, Phone: 614/422-8571
	Summer Computer and Math Camp On the Wooster College campus, Wooster, Oh.	Under $500 for one two-week residential session	BASIC	James Hartman, director, Summer Computer-Math Camp, Dept. of Math Sciences, College of Wooster, Wooster, OH 44691, Phone: 216/263-2239
	Yellow Springs Computer Camp On the Antioch College campus, Yellow Springs, Oh.	$650 for two-week residential session; $200 for one-week day camps; contact for price on family camp	BASIC, LOGO, Pascal, PILOT, Assembler	Tom Copley, director, The Yellow Springs Computer Camp, P.O. Box 292, Yellow Springs, OH 45387, Phone: 513/767-7717
OR	**Computers for Kids** Bend, Ore.	See California listing for details		
	National Computer Camps McMinnville, Ore.	See Georgia listing for details		
	Summer Computer Camp East Oregon State College, LaGrande, Ore.	$100 for one-week day sessions; $175 for one-week residential sessions	BASIC, Pascal	Howard Bailey, director, Summer Computer Camp, East Oregon State College, LaGrande, OR 97850, Phone: 503/963-2171
PA	**Atari Computer Camps** East Stroudsburg, Pa.	See California listing for details		
TN	**Computer Camp for Children** On the University of Tennessee/Chattanooga campus	Call for details for price on half-day, one-week non-residential sessions	BASIC	William Sutton, director of Continuing Education, University of Tennessee, Chattanooga, TN 37402, Phone: 615/755-4268
	Micro Computer Camps, Inc. Nashville and Memphis, Tenn.; Dallas and Houston, Tex., with a special education camp in Austin, Tex.	$495 for two-week residential session	BASIC, Pascal, PILOT, LOGO	Dr. Bob Carruthers, Micro Computer Camps, Inc., P.O. Box 11987, Memphis, TN 38111, Phone: 901/324-5543
TX	**Computer Camps, International** Denton, and San Antonio, Tex.	See Connecticut listing for details		
	Micro Computer Camps, Inc. Dallas, Houston and Austin, Tex.; Nashville and Memphis, Tenn.	See Tennessee listing for details		
	Hockaday Computer Camp On the campus of Hockaday Prep School, Dallas, Tex.	$370 for one-week day sessions; $790 for two-week residential sessions	BASIC, Pascal	Ed Long, director, Hockaday Computer Camp, 11600 Welch Rd., Dallas, TX 75229, Phone: 214/363-6311
UT	**Color Country Computer Camp** Brian Head Ski Resort near Cedar City	$275 for one week residential sessions	BASIC, PILOT	Stanley Plewe, director, Color Country Computer Camp, c/o Dixie College, 225 South 700 East, St. George, UT 84770, Phone: 801/673-4811
	Computer Camp for Youth On the Brigham Young University campus, Provo, Utah	$500 for two week residential sessions	BASIC, Assembler	Dr. Hales, director, Computer Camp for Youth, 297 Conf., Brigham Young University, Provo, UT 84602, Phone: 801/378-4903
	Half Day Camp for Kids Same location	$75 for one-week half-day sessions	LOGO, Pascal for Youth	Don West, director, Half Day Camp for Kids, 1455 S. State St., Orem, UT 84057, Phone: 801/224-1169
	The Computer Camp Surety Life Bldg., Salt Lake City, Utah	Call for cost of day sessions	BASIC, Pascal, Assembler	Gayland Updike, director, The Computer Camp, 200 East South Temple St., Salt Lake City, UT. Call operator for phone listing
VT	**Champlain College Computer Camp** Burlington, Vt.	$650 for two-week residential sessions	BASIC, FORTRAN, Pascal, Assembler	S. Richardson, director, Champlain College Computer Camp, P.O. Box 670, Burlington, VT 05402, Phone: 802/658-0800
VA	**Hollins College Computer Camp** Hollins, Va.	$90 for one week day sessions; $170 for two week day sessions	BASIC, Pascal	Barbara Kurshan, Hollins College, Hollins, VA 24020, Phone: 703/362-6541
WA	**Computer Day Camp** Seattle, Wa.	Call for cost of one-week day sessions	BASIC, LOGO	Sally Luttrel-Montez, The Pacific Science Center, 200 2nd Ave. N., Seattle, WA 98109, Phone: 206/625-9333
WI	**Computer Camps, International** Whitewater, Wisc.	See Connecticut listing for details		

PIZZA PARLOR COMPUTING

By Francine Sevel

Just the right touch of entertainment is often as much a part of a restaurant's charm as that secret recipe handed down from generation to generation. And, as time and technology have revolutionized every aspect of society, restaurants have had to keep pace. Even pizza parlors have not escaped the wheels of motion.

Today's number one pizza chain not only has a full array of pizza selections: double cheese, thick vs. thin crust, anchovies vs. olives, salad bar, deli sandwiches, beer and wine, but also the state-of-the-art equipment for high-technology entertainment.

Enter the era of megatrends. Replace the juke box with eight-foot-tall singing and dancing robotic characters. Replace the pool table with 40 or so video games, add small rides for the tykes, a large-screen television, and, last but not least, add a handful of microcomputers, and some plans to teach computer literacy to America.

Call your pizza chain ShowBiz Pizza Place or Chuck E. Cheese's Pizza Time Theatre Inc. And make sure that either Nolan Bushnell or the Brock Hotel chain is standing behind you, because you're going to need big bucks.

Those in the business refer to restaurants such as Chuck E. Cheese and ShowBiz as family entertainment centers. "We're really in the entertainment business as much as we're in the food business," states Sam Polack, senior executive vice president and chief operating officer of ShowBiz. "The very fact that entertainment is constantly changing dictates that we change with it . . . stay with or ahead of what the public wants." Thus the logistics behind both chains' recent addition of microcomputers to their menus.

If the old adage — you can tell the men from the boys by the price of their toys — is true, then the family entertainment center is definitely a rich man's sport. At ShowBiz, local talent includes "The Rock A-Fire Explosion," a group of robotic animal characters who sing, play instruments, and perform comedy routines. The act is hosted by the infamous Billy Bob, an amiable hillbilly bear, and the Birthday Bird, Billy Bob's happy "bird-day" buddy.

Similarly, at Chuck E. Cheese's, the floor show is provided by a robotic rat named, you guessed it, Chuck E. Cheese, and an eight-foot robotic lion who imitates another king — Elvis Presley. The duo is accompanied by other singing and dancing robots such as Madame Oink, a French pig, and Pasqually, a concertina-playing pizza chef.

Pizza Time's entertainment is the result of a 2.5-million-dollar development effort centered on the extensive use of computer animation. A DEC PDP 11/23 is used to program the characters' movements. Every minute of recorded skit is the direct result of five hours of programming efforts.

In the entertainment industry, change is the only certainty. In order to stay ahead of the competition, it is necessary to replace five or six video games every six months. Plan on spending at least $2,500 per video game. "It's a very capital intensive business," comments ShowBiz's Polack. "It takes a lot of money to keep these games fresh and putting in new ideas. Many of the competitors aren't willing to do that . . . if they don't or we don't, then the concept is difficult to keep in motion." Though software is less expensive to replace than computer games, ShowBiz's specially designed computer units, which house Apple II computers in a colorful shell, carry an initial investment of $4,000 per computer.

But you know what they say: You have to spend money to make money. Currently, ShowBiz Pizza sells more pizza per store than any other chain in the country. Comprised of 140 company-owned entertainment centers, plus franchises, ShowBiz is a subsidiary of the Brock Hotel chain, which, incidentally, is also the nation's largest franchiser of Holiday Inns.

The competition isn't exactly hurting either. A chain of over 214 units, Pizza Time Theatre Inc., grossed over $200-million in 1982. And it has projected that number of units will topple the 300 mark by the close of 1983.

Pizza Time Theatre, Inc. is the brainchild of Nolan Bushnell. Nicknamed the Pied Piper of Sunnyvale by *Inc.* magazine, Bushnell is the father of Pong, the pioneer of computer games, and Atari, Inc., an 11-year-old company which gobbles up approximately two-fifths of today's video game industry. A comtemporary King Midas, Bushnell sold Atari to Warner Communications, Inc., in 1976 for $28-million. When it appeared that Warner wasn't interested in making pizzas, Bushnell and Joseph Keenan (now president of Pizza Time) bought it back for $400,000. Today, at 38, Bushnell sits as board chairman of Pizza Time Theatre, Inc.

Though game revenues represent only about 25 percent of both chains' total sales revenues, they are a key ingredient of strategic marketing. "The key to marketing success is market segmentation," explains Dr. Wayne

The Pizza Time Players computer-animated characters at Chuck E. Cheese (top) and the Computer Fun Fair at ShowBiz: Megatrends and megabucks in pizza parlors.

Talarzyk, chairman of the marketing department at Ohio State University. "You are not trying to be all things to all people. When you start talking about Chuck E. Cheese, if you don't like pizza, you shouldn't go there; and if you don't like electronic games, you shouldn't go there. It's a narrower approach to marketing than McDonalds."

Only recently have the pizzaria chains added microcomputers to their bills of fare. The addition of computers represents both a desire to add freshness to the entertainment cycle and an educational element to the arcade-like atmospheres. Despite the fact that computer games account for only one percent of ShowBiz's sales, they represent an important aspect of strategic marketing. OSU's Talrazyk feels that the sophistication and variation of computer software will be essential to the extention of the lifecycle of the family entertainment center. Similarly, Polack states, "I think the computer is going to be a tremendous factor throughout the life of ShowBiz and other businesses."

This action also represents an attempt to overshadow some of the bad press currently associated with video games, with the positive image associated with microcomputers and the sense of social responsibility inherent in the teaching of computer literacy. According to Rick Faulk, president of North East Venture Group Inc., the producers of ShowBiz's software, a prime reason for integrating computers into ShowBiz was to improve the restaurant's image. "The computer has developed an image that is contrary to video games," he explained. "There is a lot of negative press out on video games and a lot of positive press on computers."

In late March the San Jose, Calif., and Sunnyvale, Calif., Chuck E. Cheese restaurants began offering computer literacy classes. "Nolan Bushnell is really interested in computers and having kids learn it at an early age," states John Porter, director of communications for Chuck E. Cheese. A $10 introductory computer club membership includes a 90-minute introductory computer course, a personal diskette, and a coded membership card which allows access to the computer learning center. Six-week courses are also offered in Logo, beginning, and advanced programming. By nature the Logo course is for younger people, but the other courses are for those aged twelve and up. According to teacher Jerry Davis, student interest is very high. "It's the kind of class where they come early, and I have to boot them out," says the computer instructor from Sunnyvale, Calif. Davis, who teaches computer skills to seventh and eighth graders by day, does not feel that the Chuck E. Cheese's informal environment has any adverse effects on learning. "I don't see that it makes the least bit of difference between that environment and my class-type of environment," explains Davis. "Usually when people are working on a computer project they're so intense and their concentration is so high, that they're not distracted by outside things." The computer learning center is housed in a glass-enclosed, sound-proof room. Though students are too preoccupied to gaze outward, it is not uncommon for diners to peer in.

Members of the Chuck E. Cheese computer club can use the computers during non-class time on a token or a quarter basis. Free tokens, obtained through meal purchases or in-store birthday parties, are equivalent to five minutes of computer time. Computer users can choose from a variety of education-oriented computer games or bring their own software. "They can come in with their own diskette and practice what they learned in class, or adults can use word processors or VisiCalc or whatever programs they have," Davis explains. Presently a number of math and concentration-type games are available for public use. Davis reports that the company plans to keep at least three computers available for off-hour use. Plans are underway to open computer learning centers in company-owned restaurants across the country.

Software producer Rick Faulk of North Andover, Mass., believes that the computer games teach children many important computer skills. "They are interacting with the keyboard, and they really learn how to make a machine work," he commented. According to Faulk, the underlying concept behind the ShowBiz Computer Fun Fair is to combine fun and enjoyment with learning activity. "Through the use of full color graphics and sound, children are exposed to computers and basic programming techniques," says Faulk. "The learning games in the package are designed to challenge children's minds through play."

In December of 1982, two ShowBiz Computer Fun Fair units were installed in each of the company's entertainment centers. Each unit is comprised of an Apple II microcomputer, video monitor, disk drives, specially designed circuit cards, and software packages for ten pre-programmed learning games. Polack views the Computer Fun Fair as a supplement to the video games, as opposed to a direct competitor. "Many of the video games have a degree of violence in them. We are not directed toward that type of entertainment," explains ShowBiz's vice president. "The Computer Fun Fair is something not only where reaction time is important, but the involvement of the human mind becomes an issue also." Unlike most video games which require lightning reflexes, these games encourage learning skills such as basic number recognition, spelling, line geometry, creativity, reading, and economics.

Although the computers have only been in the stores for a relatively short period of time, children are quickly finding their way to their favorite games. Faulk reports that *The Incredible Talking Machine* is running away with everyone's tokens. A beginning level game, *The Incredible Talking Machine* teaches phonetics and sentence structure by having the computer say aloud a sentence typed into the keyboard. However, the computer is a bit old-fashioned. If a child types a four-letter word, the computer will reply, "Billy Bob will not say that." No amount of teasing will make him change his mind.

Other games such as *Find Your Number*, *Tic Tac Toe*, and *Minus Mission*, teach basic mathematical skills. *Lemonade Stand* allows one's entrepreneur spirit to shine through. Here one must make basic decisions regarding the running of a small business — a lemonade stand. The player is asked to make certain cost/price assumptions by calculating overhead expenses, determining the quantity of lemonade to be produced, and setting the price to be charged per glass. The lemonade entrepreneur must also anticipate other variable factors such as neighborhood special events and weather conditions. (Those who do exceedingly well are asked to become ShowBiz managers.)

Face Maker, ShowBiz's second most popular computer game, teaches symbolic representation of actions and the correspondence between facial expressions and written expressions. By entering simple instructions,

Learning to program at ShowBiz: "It's the kind of class where they come early and I have to boot them out."

Tex Critter's Pizza Jamboree in California: Giving ShowBiz and Chuck E. Cheese a run for their money.

the child is able to make the face smile, wink, frown, cry, stick out its tongue, or wiggle its ears. The actions are, of course, accompanied by the appropriate sound effects.

Children love the computer games almost as much as they love pizza. In fact, for some it's difficult to decide what to do first. It's not uncommon to see children take a few bites of their pizza, run to play the computer games for a few minutes, have some more pizza, and run back to the computer. So far no one has complained that crumbs in the computer are a serious problem. But as the popularity of the computer games escalates, the crumb problem may also escalate.

Although ShowBiz's Computer Fun Fair is child oriented, Jim Shields, manager of a Columbus, Ohio unit, reports that adults also like to experiment with technology. In fact, the Fun Fair is quite popular with college students taking introductory computer science courses. And Chuck E. Cheese's computer instructor Jerry Davis has also found adults to be very receptive to his courses.

What new high-tech tricks do the stars have in store for the family entertainment center of tomorrow? Perhaps 1984 will see pizza connoisseurs connected by on-line networks. Image being able to communicate with your CB buddies while dining out.

In the realm of family entertainment centers, Chuck E. Cheese and ShowBiz are admittedly each other's major competitors. Clearly, the initial expense and the vast operating expenses eliminate the family-owned pizzaria from the running. However, other chains are giving them a run for their money. Castle Entertainment Inc., of Westlake Village, Calif., is also franchising family fun via a small chain of Tex Critter's Pizza Jamoboree theater restaurants. Aside from offering the usual education-oriented computer games, their computer learning center offers simulation programs which place people in various situations and challenge them to respond. "For instance, the computer will set up a situation where a guy is trying to meet a girl and can break the ice by delivering a witty line or a stupid one," says Bill Rameson, chairman of the board of Castle Entertainment Inc. "The computer would applaud a particularly clever line, penalize a bad one, and periodically provide a rating of the performance." Of course, your girlfriend and the computer may not agree as to what constitutes a clever line. Other simulation programs assist employees in finding the right words to ask the boss for that big raise.

Francine Sevel is a free-lance writer from Columbus.

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NEW!! POINTER VARIABLES!

Uh-Oh! Lights Out!

By Ernest E. Mau

"From the darkness came a heart-stopping cry of despair!" No, it's not the opening line of a gothic novel! It describes the reaction of a computer owner when the lights go out. Few serious users escape the effects of blackouts or brownouts, seeing the entire system shut down, knowing everything stored in memory has gone to that great void of lost software, and wondering whether magnetic media have been damaged beyond use.

Power problems are a principal cause of lost data, destroyed software, and even damaged hardware. They also are the most ignored problems. Simply stated, computer dealers, distributors, and manufacturers don't want to discourage sales by talking about anything more than minimal power-line conditioning. After all, the cost of effective conditioning and backup can range from a few hundred to thousands of dollars, depending on the equipment, the problems, and the degree of protection. If you went into a store intending to spend $2,000 on a personal computer and found you needed another $600 for power conditioning, wouldn't you think long and hard about the purchase?

Yet the need exists. Every home or office is subject to power problems. "Blackouts" or complete interruptions can last from a fraction of a second to several hours. "Brownouts" or reductions of power can do the same. Either can do damage and can be costly. Worse, there's no control over when interruptions occur nor any warning, and they always seem to happen at the most damaging times. However, the effects are preventable if the user is willing to take on some extra expense.

Though there are other problems like "overvoltage" conditions, "surges" or "spikes" of high voltage, and electrical "noise," this article limits the discussion to blackouts and brownouts. However, those other conditions also pose significant problems that shouldn't be ignored, but their effects often can be eliminated or reduced with appropriate backup power supplies.

To demonstrate power-loss prevention, four devices have been selected and tested. There are others, but the selected units are widely advertised and appear useful and attractive purchases. The units in question are:

The RBS-DC Reserve Battery Supply with a base price of $325.00 is from Control Technology, Inc., 8200 North Classen Blvd., Suite 101, Oklahoma City, OK 73114, (405) 840-3163. The version tested was for Apple II or Apple II Plus systems, but versions also are available for Apple IIe, Apple III, Franklin, Basis, Commodore, and IBM Personal Computers.

The Guardian Angel, priced at $595.00, is from R.H. Electronics, Inc., 566 Irelan, Buellton, CA 93427, (805) 688-2047. This unit installs on the power line and supports all systems and components with a total load of 150 watts or less.

The SPS-0200 Standby Power System, priced at $489.00, is by SAFT-America, Portable Battery Division, 931 North Vandalia Street, St. Paul, MN 55114, (612) 645-8531. It installs on the power line and can be used with any system having a total load up to 200 watts.

The Mayday 60 + 6S is one of an extensive line of backup supplies from Sun Research, Inc., Box 210, New Durham, NH 03855, (603) 859-7110. Priced at $1,140 with batteries, it also installs on the power line but supports loads up to 600 watts.

The first three were tested on one computer system under similar conditions. Peripherals varied as appropriate for the power unit, but all tests always used an Apple II Plus with two Apple disk drives. Peripherals included an Amdek Video-300 green-phosphor monitor, a Pancolor color monitor, and an Epson MX-80 printer.

All eight Apple II slots were filled, using a 16K memory board, a parallel printer card, a serial printer card, an 80-column board, a ROM card with two utility ROMs, a Z-80 computer card, an Apple disk controller, and a real-time clock. Due to its high power requirement, the serial letter-quality printer was not connected to a backup supply, but the interface was powered.

The Mayday unit was tested with a 64K Morrow Designs' Decision 1 (S-100) equipped with dual eight-inch double-sided double-density disk drives, a Mult-I/O multiple-port interface card, and a Disk Jockey/DMA controller. An ADDS Regent 25 terminal also was connected.

Before describing the units, some terms must be clarified. Frequently, the devices are called "Uninterruptible Power Supplies" or "UPS" units. However, these four are not true UPS devices. In a UPS, alternating current (AC power) charges the batteries; the batteries always supply direct current (DC power) to "inverter" circuitry that converts DC to AC and transmits power to the connected system. If the main power input fails, only the charging circuit shuts down, while batteries continue to provide system power without switching delays. Such units are available, though often at high prices, and may be essential for sensitive equipment or critical applications.

The four units herein are "reserve" or "standby" supplies. Main AC power supplies the computer system directly, with a small amount "bled off" to charge batteries. When power is interrupted, detection circuitry switches the batteries and inverter onto the line for the duration of the failure and then off again when power returns. Detection and switching cause a short interval during which power to the computer system is interrupted, so the system must be able to tolerate from a half to a full cycle without power and without losing data, erasing memory, or disrupting disk operations. With 60 Hz AC power, a full cycle is 1/60 of a second, so computers capable of withstanding interruptions of 0.008 to 0.017 second should have no problems. Most personal and small-business computers appear capable of tolerating that short interruption without noticeable harm.

RBS-DC

Control Technology's RBS-DC represents a system-specific approach. The unit does not install on the AC power lines but is interposed between the internal computer power supply and the computer circuitry. The computer's normal power supply converts AC line input to DC currents needed by the electronics. The RBS-DC "taps" the DC lines, draws a small "trickle" of power for battery charging, detects interruptions only on the DC lines, and supplies DC power directly to those lines during an interruption.

These units are designed for specific computers, supporting only the electronics installed within the computer chassis and normally powered internally by the computer. In an Apple II, the RBS-DC keeps the computer operating during the interruption. That includes the motherboard, memory, plug-in cards, and disk drives powered from the plug-in controller. It does not support external peripherals such as video displays, printers, spoolers, eight-inch AC disk drives, or hard disks.

Usually, loss of a printer during a power interruption isn't critical. New printouts can be started when the blackout ends, costing a little time, using some extra paper, and creating a bit of an annoyance. But it's not a disaster! Loss of video display is more disturbing. According to RBS-DC instructions, "Enough time is available to allow uninterrupted computer operation through temporary power failures, or an orderly shut-down in the event of an extended outage." The first part is easy enough. Sit back and wait for the lights to come on! The computer continues what it was doing though you won't be able to see it or obtain printouts.

Orderly shutdown is possible if it can be done "blind." Some programs can be shut down with a couple of keystrokes, so escaping without a screen display isn't difficult if you remember what keystrokes are needed. Others, however, can be hard to shut down without seeing what you're doing. Word processors are particularly hard to escape blind without damaging or losing work. These may require numerous steps often separated by disk accesses and now unseen screen prompts. A mistake during shutdown could lose data, destroy disk files, or have other undesirable effects.

The obvious solution is to use a battery operated TV set for the video display. It's acceptable for personal use around the home, but not practical in business applications where high-quality high-resolution displays are needed.

On the positive side, the RBS-DC has the longest "hold-up" time of any unit tested. According to specifications it should keep an Apple II operating for a minimum of 115 minutes (1 hour 55 minutes). However, that's qualified by specifying a 48K machine with a language card (16K add-on memory), two disk drives on one controller, one printer interface, and one clock card. It also assumes just one disk access of not more than 30 seconds duration. In the test system, equipped with more devices, the hold-up time was between 75 and 90 minutes, allowing one disk access. That proves sufficient to get past most power failures, the most bothersome of which are only a few seconds long.

Each disk access causes significant battery drain as drives are started, and each reduces hold-up time. Five or six accesses seemed to be the practical limit, virtually eliminating further hold-up time. Of course, reduction of backup time by disk drives is not unique to the RBS-DC; it affects all standby power systems the same way, but the RBS-DC starts with a longer capability than others.

Installation can be something of a problem. Except with the Commodore version, the RBS-DC must be connected inside the computer and could void a warranty or service contract. The power leads from the internal Apple II power supply must be unplugged from the motherboard and connected to a special cable adapter board that can be mounted to any interior flat surface — the top of the power supply box is a good place. That adapter then connects to the original plug on the motherboard. So far, so good; there's no real problem. But there's a cable that has to run out to the external unit, and it can be a nuisance.

FCC regulations concerning electronic interference dictate a short shielded cable to the unit. Thus, a 27-inch cable, which is a bit thick and not overly flexible, limits installation locations. It must be routed from the adapter through a rear chassis cutout, but it's too thick to pass behind a circuit board in slot 0 — the only allowable slot for a memory card. It can be routed under the slot-0 circuit board behind the motherboard connector, but care is necessary to prevent the cable pushing the memory board up and out of the connector.

Kinking the cable causes no harm, nor does cutting away a section of shielding, though that's an FCC violation if detected. With three or four right-angle turns, a good installation that won't lift the slot-0 circuit card can be achieved. Two points! First the cable on the RBS-DC is easier to handle than on its predecessor, the APS-5. Second, the Apple IIe provides a special opening for the cable.

The unit performs admirably. When power goes off, the RBS-DC takes over, a front panel indicator flashes, and a "beeper" sounds. The audible alarm may seem unnecessary at first because the display screen blanks out. Yet if the system is running unattended, the beeper alerts a user to the power failure. When power comes back on, the unit returns to standby status and all operations continue normally.

The RBS-DC does require a change in operating procedures. Because it's between the Apple power supply and the motherboard, switching the Apple off appears as a power failure. To shut the computer off, it's necessary to either hold the RBS-DC reset button while throwing the computer switch or throw the switch and then hit the RBS-DC reset. The first method is preferable to eliminate a momentary and unnecessary battery drain. The habit of booting the computer with the power switch must be adjusted to use the RBS-DC reset at the proper time, otherwise, the system doesn't power down for the reboot.

The RBS-DC includes a re-design to eliminate a "disk trip" malfunction that plagued the older APS-5 where rebooting the Apple II system with a PR#6 command sometimes activated reserve power as though there was a power interruption. It didn't happen every time, but often enough to be bothersome. When it did happen, a disk access underway for booting caused significant battery drain. Using the system only a few hours a day and running into rebooting activations tended to keep the APS-5 on the ragged edge of a "low battery" condition. The RBS-DC has demonstrated no such tendencies, though both versions provide an internal potentiometer adjustment to set the threshold. If such a problem is noted, the dealer should be notified, and the appropriate adjustment made.

The RBS-DC takes less than 24 hours to recover from complete battery discharge on the Apple II (18 hours with other computers), so it has the longest recharge period of units in this article. Furthermore, recharging takes place only while the computer is powered. That may be something of a disadvantage, but it seems to be a necessary tradeoff when tapping the computer's internal DC lines while attempting to provide long hold-up intervals.

The RBS-DC comes with a six-month warranty (excluding the batteries), and several options or accessories are available. A transient suppression card ($50.00) guards against line spikes and overvoltage conditions. An interrupt and computer cut-off cable allows generation of machine interrupts, activates external devices such as auxiliary alarms or even electrical generators, or provides software controlled turnoff during a power failure. An accessory DC adapter allows operating the RBS-DC and computer from some other 12-volt DC source like an automobile battery or cigarette lighter.

Control Technology also indicated plans to introduce an in-line AC supply for people who object to the loss of video and other functions during power interruptions. Supposedly it will support loads of up to 275 watts, but other specifications were not available at the time this article was prepared.

The Guardian Angel

R.H. Electronics' Guardian Angel is a line-type reserve supply usable with any equipment within its power specifications. That means computers, peripherals, or combinations drawing 150 watts or less. The manufacturer has stated that it should work with connected loads up to 200 watts, but hold-up time may decrease.

Installation is simple! Plug Guardian Angel into a grounded wall socket. Plug the computer power cord or a multi-outlet power strip into a receptacle on the supply. Switch on the supply. No need to enter the computer and connect or disconnect anything. No need to route cables, move cards, or risk voiding a warranty.

The unit responds to interruptions in AC power, not transient interruptions to a DC line that might be caused by switching the computer on or off (cold starting) or performing a warm boot operation. Furthermore, it can be used to supply power to several devices, including a printer, spooler, and monitor if the total load is within

tolerances. For example, an Apple II computer with an Amdek Video-300 monitor and an Epson MX-80 printer is within specifications and allows continued operation without being "blinded" by the loss of the video display. To increase the support time, however, it may be desirable to leave the printer unsupported.

Like other units under test, Guardian Angel performed as advertised. Switching time between power interruption and battery takeover is specified at less than 10 milliseconds and is fast enough that connected components suffer no adverse effects — only the slightest screen flicker has been noticed. The manufacturer claims the unit will take over during undervoltage conditions (below 100 volts AC) and overvoltage conditions (above 140 volts AC). During the test period, a few brownouts occurred and dimmed the lights, but the Guardian Angel switched in and prevented any loss of data or memory storage typically seen without it.

There are a few observations users should recognize before purchasing. First and most important, it has a comparatively short hold-up time, conservatively specified at two to six minutes with a rated load of 150 watts. At a half load of 75 watts, the backup interval still is rated at only 15 minutes. Under test, it did last longer, but usually had to be shut down within 10 to 12 minutes. Bluntly, it's the shortest rated hold-up time of any unit tested and one of the shortest noted in literature for other units. Connecting external batteries can extend the time, and, with enough batteries, 6 to 12 hours of support is possible but expensive.

However, recharging time from a deep discharge typically is about 12 hours, which is faster than many other units. In fact it's one of the fastest recovering units available. Furthermore, the high-speed charger cannot overcharge the batteries.

Hold-up time may or may not be a disadvantage, meaning simply that users should prepare for orderly shutdown when the alarm sounds. Where the RBS-DC allowed a substantial interval before shutting down, longer than most power failures would last, Guardian Angel doesn't give the luxury of sitting back to wait out a power loss exceeding a few minutes. The best procedure seems to be exiting the system if the outage lasts longer than 60 seconds — just to play it safe.

There was some evidence of "chattering," particularly during power restoration when line conditions fluctuated rapidly. Typically, this occurs when the battery is low, and is noticeable when Guardian Angel rapidly switches back and forth between the AC line and the battery inverter. The rapid oscillation of the reserve supply under unstable line conditions could stress connected equipment if allowed to continue, so it is recommended that the entire system be shut down immediately if it occurs. In some other units, the problem is eliminated by a multiple-second delay from when the supply sees AC power return and when it switches back to the AC line; thus, fluctuating AC power just keeps the supply operating on the inverter until it stabilizes. The supplier advises that a fix is available for the chattering if it becomes a problem.

The unit is equipped with an audible alarm that can be switched off, a status indicator that changes color and flashes at different speeds to indicate battery condition, and an on/off switch. Transient surge protection is provided as a standard feature. It also has connections for external 12-volt batteries, with an optional cable available for plugging into an automobile cigarette lighter. However, the unit has a warranty for only 90 days.

The manufacturer claims several advantages. First, switching time is supposed to be within 10 milliseconds of interruption and at a zero-voltage crossover in the power cycle, thereby maintaining an in-phase operation intended to eliminate power transfer problems. Transient switching voltages are crystal controlled to 0.01% to improve the operation of connected synchronous motors. These are things that affect technically-oriented users, but aren't especially noticeable to other users, though none of the units under test demonstrated any problems whether they had these features or not.

The SPS-0200

SAFT-America's SPS-0200 formerly was marketed under the Gould name. There's also an SPS-0400 model offering twice the output but just under half the hold-up time. Like Guardian Angel, the SPS-0200 installs on the AC power line between the wall socket and the supported equipment where it responds only to interruptions in the main power line.

Equipped with four receptacles, it can power several devices up to a rated load of 200 volt-amperes. According to the dictionary, a volt-ampere is equivalent to a watt, so that's 200 watts. On the basis of just the rating, that's 25% higher output with a hold-up time about three times longer than Guardian Angel. Under a test load, it did live up to its claims and even held up for three minutes under a 700-watt load accidentally imposed by a different computer system, although it caused all kinds of noise and buzzing in that computer.

The companion model SPS-0400, which hasn't been tested, is supposed to give a 400 volt-ampere (400 watt) output, but it's rated for only eight minutes of hold-up time at full load.

After three months of testing, the SPS-0200 continued to perform as advertised and expected. Switching time between power interruption and battery takeover is specified at less than 10 milliseconds and is fast enough that the connected system components suffer no adverse effects. Occasionally, there is a brief flicker on the video screen as it cuts in, but that's all. No memory losses. No disk storage damage or losses. No interruption to normal system operation.

The manufacturer does not specifically claim the unit will take over during undervoltage or overvoltage conditions, but the test unit responded to brownouts. There is a suppression network to keep transient voltage spikes from reaching connected equipment, but no specifications are provided.

It's difficult to find a complaint. It's strictly a matter of plug it in and forget it. The only time it needs any attention is when the alarm sounds. It comes with a comparatively long 12-month warranty that includes the battery which others exclude and refer to a separate manufacturer's warranty. It has external, user-accessible fusing that the other units don't have. It also has a low-battery cutoff circuit to prevent extended power outages from completely draining the battery.

The SAFT-America units do not "chatter" under fluctuating AC power. After power is restored following an interruption, there is a delay of several seconds before the units switch back from the inverter to line power. Under fluctuating conditions, they simply stay on the inverter until the situation has stabilized.

The SPS-02000 lacks provision for external batteries or power sources. Where the hold-up times of other units can be increased by attaching extra batteries, there is no readily available connection on this unit. It's strictly an indoor unit designed for home or office environments.

The test unit had a quirk that cost a little sleep, though it's supposed to be changed in later models. Once activated, the alarm beeper doesn't shut off without manual intervention. Even after power is restored and the unit returns to AC operation, the alarm keeps beeping until a rear-panel button is pressed. It makes no difference whether the unit is switched on or off, a power failure triggers the alarm. While it is useful to know that a power failure has occurred while away from the equipment, home installations where the utility company frequently interrupts power in the middle of the night can necessitate waking up and switching the alarm off.

The 200-watt output appears nearly perfect for small systems and peripherals like the Apple II, Epson MX-80, and Videx Video-300 configuration. The 20-minute hold-up time is sufficient to ride out brief power failures and allows enough time for orderly, error-free shutdown from even the most complicated programs if the outage lasts longer than ten minutes or so. The recharge time from a "deep" battery discharge is 12 to 16 hours, about the same as Guardian Angel and somewhat shorter than the RBS-DC.

The Mayday 60 + 6S

The Sun Research Mayday 60 + 6S is larger than the others, providing in-line backup for loads up to 600 watts. This particular model generates a sine-wave output, compared to the rectangular-wave outputs of the Guardian Angel and SPS-0200. It is the top-of-the-line unit among Sun Research products, and it includes both a surge suppressor and voltage regulator.

The real advantage to this type of unit is its sine-wave output that is close to normal AC power. Rectangular-wave units do a good job of approximating normal power, but some equipment just won't operate properly with them. Particularly sensitive AC motors like those in eight-inch disk drives, hard disks, and other devices won't always tolerate power other than sine-wave, demonstrating the incompatibility through obvious slowdowns and changes in sound. Oddly, some switching power supplies used in computers also won't tolerate rectangular-wave power. That was the case with the Morrow Designs' Decision 1, in which the internal supply would start oscillating wildly when hit with a rectangular wave (a call to Morrow Designs indicated this might be a destructive oscillation).

Like every unit tested, this one did the job it claimed, providing just over a half-hour of backup for the test system which applied three-quarters or more of the rated load. When hit with a power interruption, it never failed to support the computer and disk drives properly. However, blanking of the video screen on the CRT was common during or after supply switching. The Mayday unit wasn't fast enough for the ADDS Regent 25 terminal, though that terminal seems unusually sensitive to power disruptions. Substituting a Hazeltine 1500 resulted in fewer screen blankings. Nevertheless, a blanked screen is tolerable most of the time, provided the computer isn't interrupted. It usually is easy to restore the screen contents with a keystroke or two.

Notably, this unit is not quiet like the others tested. In fact, it is downright noisy — humming and buzzing loudly whenever plugged in. Other units shut down completely when not actually charging the batteries, but this one continues to draw power and remains noisy even after the batteries are fully charged. On the manufacturer's advice, two large storage capacitors that had been vibrating were replaced, reducing the noise level but not eliminating it. Some of that noise also comes from several large ferro-resonant transformers, although they were properly seated and secured to the chassis.

The unit runs a bit hot, where others remained cool even under backup operation. The Mayday gets hot, whether on backup or line operation, though the manufacturer has provided assurance this is normal. There are redundant thermal cutoffs in the unit to interrupt power if temperature tolerances are exceeded, but the overall warmth may be disturbing when the unit first is installed.

Another difference is that all three other units were equipped with internal gelled lead-acid batteries. The Mayday arrived with two external 12-volt wet-cell batteries to be filled with electrolyte, charged, and installed in an acid-proof plastic battery case separate from the main unit. Other batteries are available at extra cost, but all are external, meaning there's some element of inconvenience in trying to install both the large inverter box and the battery container.

Installation was a bit of problem, even after space had been cleared to house both the inverter and batteries. First, the batteries don't fill the plastic case, and foam padding must be added below and around them to hold them — watch out for fumes if acid spills on the foam. Second, not everyone feels comfortable filling batteries with electrolyte — a corrosive sulfuric-acid mixture that can cause severe burns if not handled carefully. Third, the connecting cables were defective, and the connectors separated from the wires while connecting the batteries and attaching the leads that would run to the inverter. That meant interrupting the installation to rebuild cables. Fourth, on touching the cables to the contact posts of the inverter box, there's an electrical arc accompanied by a loud burst from the alarm circuit. Since the instructions don't mention that effect, it's disconcerting the first time it occurs — in fact the surprise petrified this reviewer.

Once installation problems had been overcome, the unit was immediately operational, requiring about 12 hours to charge the batteries. After that, the only really annoying thing was the buzzing noise, which remained loud enough to be distracting in a limited work space. Since the buzzing (and the power draw) continues even when the entire system is shut down and the Mayday is switched off, an attempt was made to stop the noise by unplugging the unit when it was idle. Without disconnecting the batteries, however, they partially discharge overnight, meaning an hour or two of operation with decreased backup each morning until they are fully recharged.

The 60+6S has a surge-protection and voltage regulation feature that does more than just clamp or cut off high voltages. Whenever a change in power exceeds the capability of the protection circuitry, there's an immediate switch to backup battery power. This prevents the connected equipment from seeing voltage fluctuations, and no other regulators or isolators are needed.

Obviously, a few problems were experienced with this unit, but the capability of supporting a large microcomputer installation with its peripherals was attractive. Furthermore, the sine-wave output was needed by the particular system, and the only other way to obtain such a power source would have been with true Uninterruptible Power Supplies from other manufacturers at even higher costs and possibly with similar problems. This particular unit probably is not well-suited to small installations like the Apple II, but it is useful with larger, more sophisticated systems typical of business and professional applications.

General observations

Other than the Mayday unit, most reserve supplies use "gelled lead-acid batteries." They are moderately heavy units. The RBS-DC weighs almost 10 pounds, Guardian Angel is almost 15 pounds, and the SPS-0200 is 32 pounds. In contrast, the Mayday 60+6S has a shipping weight 124 pounds (70 pounds for the inverter and 54 for the two wet-cell batteries). However, the gelled acid batteries are significantly better than nickel-cadmium batteries because they aren't subject to charge-memory problems. Nickel-cadmium batteries have to be cycled from full charge to low charge periodically to keep them from taking a "set" that would prevent full cycling when it's really needed for equipment backup. In general, avoid power supplies that use nickel-cadmium cells.

Gelled batteries are called "maintenance-free," but it only applies to not having to add water or electrolyte as wet cells require. Like all storage batteries, these do break down in time and eventually have to be replaced. Stated life expectancies range from two to five years, but most seem to be about three years.

None of the manufacturers herein mentioned possible hazards of gas venting. SAFT-America does include an unexplained direction not to enclose the SPS-0200 in an airtight environment, but they seem more concerned with possible heat build-ups if there's insufficient air circulation (though the unit never has run hot). However, literature from some other manufacturers does suggest that, under rare or abnormal circumstances, any batteries could vent gases, principally hydrogen, that could be explosive if not diluted with fresh air.

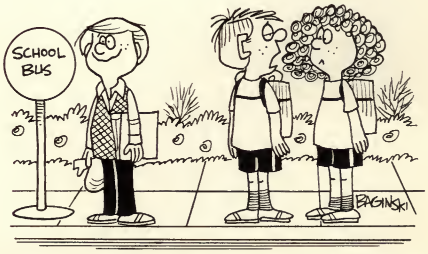
Therefore, power supplies should not be used in airtight areas where gases or heat might accumulate. Normally, this shouldn't be a problem, but all users should be aware of the possible hazard and make sure they always have sufficient ventilation. A unit sitting on a desk in a house or office shouldn't pose a problem. Do not, however, enclose units in cabinets, drawers, or other confined areas.

Though already mentioned, this bears repeating. Some units output a sine-wave just like regular AC line power. Others, output a rectangular wave that only approximates normal power. For many devices, this is no problem, but for others it is. Motorized equipment such as AC-driven disk drives, hard disks, and even cooling fans won't always tolerate a rectangular waveform. This is characterized by hearing motors slow when reserve power takes effect. Similarly, some internal computer power supplies may not tolerate rectangular waveforms, and they can start "ratcheting" or oscillating, sometimes destructively. Users must be careful about matching power supplies and equipment, making certain the standby unit may be returned for refund if it won't work in a particular installation.

All such reserve supplies provide an interesting advantage with videotex or networking applications. In a typical power failure, the telephone lines are unaffected since they are independently powered by the telephone company. By keeping the computer and modem on-line and operational, data retrievals and transmissions can continue uninterrupted. That translates to a savings in time and connection charges because it's possible to avoid having to restart an operation from scratch.

As a final thought, the object is not to keep equipment operating through long outages. If power is going out for hours or a day, no normally affordable unit will back up the system for that amount of time. The real purpose is to ride over the short interruptions — those half-second to ten-second outages that are just long enough to wipe out hours or days of work. If the outage lasts more than a few minutes, there should be sufficient time to shut down the system after saving work in progress so nothing is lost and the job can be resumed later. With those things in mind, reserve power can be invaluable in any serious application. It only takes one power failure at the wrong instant to wipe out enough work to more than pay for the supply unit that should have been installed in the first place.

Ernest E. Mau is a technical consultant and freelance writer from Denver.



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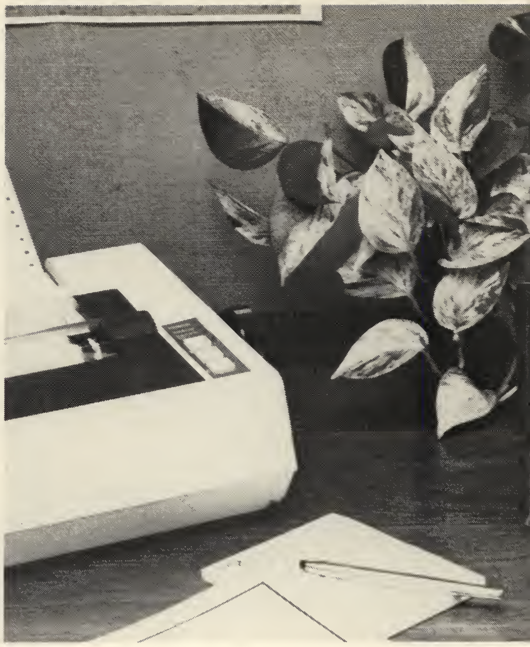

THE MICROSPOOLER

MicroSpooler
Consolink Corp.
1840 Industrial Circle
Longmont, CO 80501
(800) 525-6705

Reviewed by Fred Blechman

Since the review of the "Sooper-Spooler" in the March issue of TODAY (page 36), the manufacturer has changed its name from Compulink to Consolink, added a toll-free number, and now has a less-expensive buffer/interface device called "Micro-spooler."

The MicroSpooler's basic function is to accept data at high speed from your computer and then feed that data to your printer at the much-lower printing rate. This frees your computer for other activity while the printer is doing its job.

Save over 20 minutes

For example, if you are printing a 20-page document (assuming 60 lines per page, with an average line length of 40 characters), using a printer with a speed of 80 characters per second and no printer buffer, it takes about 21 minutes to print one copy — and another 21 minutes for another copy. During all this time, the computer is not accessible to you, since it's directing its output to the much-slower printer. However, with a typical computer output of 3,000 characters per second fed to a MicroSpooler, your computer would be free in 16 seconds. Plus, you can make up to 99 additional copies without using any more computer time. As far as the computer knows, it's connected to a 3,000 character per second printer.

The MicroSpooler can also be used with other devices, such as between a phone modem and a printer, or between a computer and a modem. Four models are available for any combination of parallel or serial inputs or outputs, with miniature switches accessible from under the unit to set serial parameters. Each model is available with a 16K buffer size, expandable by either the factory or the user to 32K or 64K. Two 4164 dynamic RAM chips — about $6 each — will upgrade 16K to 32K; four more will complete the upgrade to 64K. They simply plug into empty socket on the MicroSpooler PC board.

All models of the MicroSpooler — 6½-inches high by 2¾-inches wide by 8¼-inches deep — are vertically oriented to save table space. The built-in 120VAC 60 Hz power supply consumes only six watts, and now power is drawn from the printer or computer. Two ½-inch-high LED digits provide status readout of the amount of data stored, copies remaining, or pause function. Two large front-mounted pushbuttons (COPY/PAUSE and RESET), and an on-off power switch on the rear, are the only controls — signifying the simplicity of operation. A self-test routine checks both the ROM and RAM contained in the MicroSpooler. Furthermore, the units are sold with a 30-day money-back guarantee and one year repair-or-replace warranty.

Toll-free hotline

I bought my unit after calling the toll-free number and asking a few questions. I have a TRS-80 Model III and a Okidata Microline-80 Printer (Centronics-type parallel interface), and I wondered if I would be able to use the MicroSpooler with this combination. The very helpful woman at the other end of the line explained that they had units for parallel-to-parallel, serial-to-serial, serial-to-parallel, and parallel-to-serial. I ordered the parallel-to-parallel unit ($199) and a standard parallel cable ($30). The woman told me it would take a few weeks, and they'd call to verify before shipping. There would be no charge on my credit card until shipment. I received a call only two weeks later that my unit was being shipped.

When the MicroSpooler arrived, I did something I usually don't do: I hooked it up without looking at the instructions — and it worked on the first try! I turned off all power to the computer and printer. The cable that formerly went to the printer plugged into the input connector on the MicroSpooler, and my new cable went from the MicroSpooler output connector to the printer. Then I plugged in the MicroSpooler to the power line. I turned on the computer, the printer, and the switch on the back of the MicroSpooler. The large LED display on the MicroSpooler read "0." I fed some text from a word processor. Everything worked perfectly, and my computer READY prompt came up after only a few printer lines, even with a page or more of text. What a pleasure!

The very clear and complete 22-page manual explains how to perform other functions. Frankly, I'm glad I had a simple parallel-to-parallel interface, since the instructions for connecting serial devices took several pages to discuss setting the small switches used on those units. The manual gives considerable technical information on interfacing the MicroSpooler and your computer with the slave device. Connector pinouts, signal descriptions, and timing diagrams are provided, though a unit schematic is not. Consolink has that toll-free hotline if you run into an interface problem. I just plugged in the cable and it worked. Simple!

Two-digit display

The two-digit LED display provides various status reports. Normally, it reads "00." When printing is dumped from the computer into the MicroSpooler, the LEDs count by 1,000- byte (kilobyte or "k") increments up to the buffer size. Even as the LEDs are counting, the printer starts. As soon as the computer completes output to the buffer, the screen shows the READY prompt, and you again have control of the keyboard. The printer charges ahead for as long as it takes, and the MicroSpooler display counts down a kilobyte at a time. If you wish to interrupt printing at any time, just press the COPY/PAUSE button and the LEDs blink rapidly to let you know you are in PAUSE. When the printing is completed, just press the COPY/PAUSE button for each additional complete copy of the buffer contents.

To preset the number of copies, press the COPY/PAUSE button before printing and the display increments up to 99. You can command the MicroSpooler to pause automatically after each copy, or at each form feed character (ASCII decimal 12). The RESET button clears the entire MicroSpooler memory instantly.

Drawbacks?

As with many good things, there are some drawbacks. I found that when I ran some programs that put information on the screen and also output to the printer, the screen display whizzed by (since it wasn't being slowed down by the printer). This could be corrected by some short (under six seconds) FOR-NEXT loops in the program, or by pressing the PAUSE button on the MicroSpooler. The MicroSpooler "batches" all printer output from the computer with less than six seconds between characters.

On the other hand, some tabulations that normally are very slow because the printer is addressed for each line, appear on the screen almost instantly and are completed while the printer is still cranking out the first few lines.

I'm sure I will consider the MicroSpooler one of the most essential parts of my computer system, like the printer itself. It speeds up screen displays and sets the keyboard back under my control for the next task. I don't have to sit twidling my thumbs waiting for the printer. It greatly increases the efficiency of my whole system.

Fred Blechman is a free-lance writer from Los Angeles.

THE PROGRAMMER: A Program Writing Tool

Reviewed by Ernest E. Mau

With "user friendliness" a paramount consideration in microcomputing these days, there has been a run on software or programs claiming to ease the burden of writing other software. So-called "program writers" or "software generators" are advertised throughout popular computing magazines. However, advertising can be misleading, and a user may find a newly acquired software generator is nothing more than a database management system (DBMS) that prepares an individualized means of manipulating database information repetitively. It may generate software only for specific and limited applications within the database and not for general-purpose computing.

That's great for a user who relies on databases for information handling, financial analyses, and so on. But what about applications that don't bend to such structures?

A solution to easing program writing without relying on database structures is Advanced Operating Systems' The Programmer. This menu-driven "programming shorthand" system, written by Ron Kelly, speeds BASIC programming for any imaginable purpose by converting menu selections and definitions to error-free lines of code. It's capable of producing virtually any type of program for any application and thereby is a true software generator.

Versatility is the key to The Programmer. The user begins by planning a program, preferably creating detailed step-by-step flow charts. Each charted step is converted to one or more lines of BASIC code by selecting and sequencing menu choices. Don't misunderstand; proper menu use is not a trivial consideration. There's more to it than just telling The Programmer to write a program for name and address management. The user must have a knowledge of the operational flow through his or her solution to a problem and must process each step individually. The software cannot and should not attempt to think for the user, but only enhance the user's abilities by eliminating the tedious overhead of manually coding each step.

The Programmer does not eliminate the need for good planning. It doesn't eliminate the need to devise a workable solution or algorithm. It doesn't eliminate the need for a knowledge of logical programming techniques and approaches. Instead, it increases programming speed for greater productivity. It minimizes the need for in-depth knowledge of individual BASIC instructions and statements, while relieving the user of the long and often baffling process of "debugging" a program for syntax errors and typographical mistakes. It can even improve programming expertise by permitting concentration on creative aspects instead of mechanical ones.

The system contains nine primary function menus, most having multiple sub-menus and operations. The primary ones provide choices for disk-file control, printer control, console control, overall program control, alphabetic (string) functions, numeric functions, special functions (including graphics), various utilities, and update or exit options.

To illustrate, the primary menu for Program Control offers eight options, namely branch, repeat, delay, halt, call, chain, remarks, and BASIC statement. Suppose "branch" is selected by keying its selection number. A submenu offers four more choices, specifically branch unconditionally, branch on condition, branch on menu selection, and branch on error. Choosing branch on condition then allows conditions to be specified, and the appropriate program code is written to accomplish that operation. Obviously, the user must know and indicate when a branch is required, what kind of branch must be performed, and what the conditions for branching must be.

When a line of program code is written by the software, it's free of typing errors, syntax errors, and similar problems. However, it is not necessarily free of logic errors, so if the user fails to keep track of variable names, steps already performed, allocation of values to variables, and other factors, it is possible to write a program that won't work as intended because the underlying flow is wrong. The Programmer cannot guarantee the accuracy of the algorithm or procedures chosen — again, it cannot think for the user, anticipate the user, or second-guess the meaning of instructions. It does exactly what it's told, when it's told.

An early question for this reviewer was, "What happens when I have to do something not available from a menu selection?" Well, several menus and sub-menus contain the choice "BASIC statement," inserting a program line exactly as the user writes it. That allows any operation to be programmed even if the menus don't provide it, though such lines are accepted literally and without any syntax or other error checking.

Using The Programmer is a pleasure. With practice, it accomplishes what it promises, effectively relieving the user of tedious tasks. The manual provides both tutorial and reference sections, with the former introducing procedures and possible approaches, while the latter allows finding reference information quickly. The manual is readable, easily followed, and provides a thorough guide through the system. It also includes sample programs and procedures for a mailing-list manager and several graphics applications.

About the only somewhat negative comment is that The Programmer doesn't necessarily write the most efficient (fastest or least memory consuming) code possible. For example, the version tested runs under Microsoft BASIC-80 with a SoftCard for the Apple II. It's characteristic of BASIC-80 that files may be opened and closed, allowing re-use of a file number for different purposes at different program points. The BASIC may be initialized from CP/M for a stated number of files, with each added file reserving additional memory. By using the minimum number and reassigning as needed, memory can be conserved. With The Programmer, each file used in a program is defined against its own file number, meaning more numbers assigned for complex programs, and a corresponding decrease in free memory.

In examining the output code from The Programmer, which can be copied, modified, or used in any other way desired, numerous instances can be spotted where simple changes could speed the program or free some memory. Like any other software, however, The Programmer must make some tradeoffs to be usable, and a small sacrifice in efficiency of the output code is necessary to achieve reasonable reliability and ease of use in creating that code via menus. Of course, a programmer interested in improving an output can edit and alter lines, commands, or statements as necessary. Nevertheless, the package

Continued on page 48

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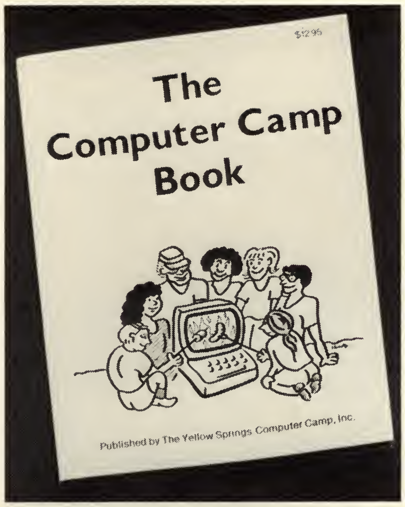

COMPUTER CAMPING

The Computer Camp Book
by Laura Littell and Fred Hickler
227 pages
The Yellow Springs Computer Camp, Inc.
$12.95

Reviewed by Carole Houze Gerber

The staff at Yellow Springs Computer Camp at Ohio's Antioch College learned so much establishing and running their first session last year that Professor Tom Copley, the camp's executive director, decided to put together a book about it. The result is a delightful, easy-to-read soft-cover volume titled simply *The Computer Camp Book*.

Written and edited by camp counselors Laura Littell and Fred Hickler, with design and production work by artists Sharon Sandusky and Chel White, *The Computer Camp Book* includes information for parents, children, counselors and camp directors. Chapters include "How to Start and Run Your Own Camp," "Ideas and Materials for Learning and Teaching," "Computer Literacy and Recreational Activities," a "Nationwide Guide to Computer Camps," "Courses and Workshops" — and delightful interviews and essays by campers, campers' parents, and counselors. The camp's board members, Barbara and Phil Fullam, Barbara Dee Copley, Paul Monaghan, and Warren Watson, also provided support and articles. To receive the 227-page catalog-sized book, send a check made out to Yellow Springs Computer Camp, Inc., for $14.95 (includes $2.00 postage) to Sharon Sandusky or Chel White, 8327 Sheridan Lane, Eden Prairie, MN 55344.

COMPLETE HANDBOOK OF PERSONAL COMPUTERS

The Complete Handbook of Personal Computers Communications: Everything You Need To Go Online With The World
by Alfred Glossbrenner
St. Martin's Press, New York
325 pp, $14.95.

Reviewed by Charles Bowen & Stewart Schneider

Sometimes publicists do an author a disservice.

The press releases from St. Martin's Press in advance of this book said it would be as "important as the personal computer revolution itself."

We wouldn't be surprised if author Alfred Glossbrenner was as embarrassed when he saw that as singer Bruce Springsteen had been after an overzealous publicist plastered posters all over town boasting that the young New Jersey rocker would be "the next Bob Dylan."

Such praise has a way of making truly worthy work seem pretentious — particularly in a field such as microcomputers. Long ago we all had to develop antibodies to the epidemic of hype.

Perhaps best of all, it points out what the major information services have in common, so new users have a good idea of what to expect before they log on. This is the kind welcome wagon a lot of us wish had greeted us when we came ashore in the Network Nation.

Of course, the braggadocio from Glossbrenner's publisher will challenge many reviewers to find fault. And there are nits to be picked.

To Glossbrenner's credit, he tries to cover the entire spectrum of computer communications, from its history to its technical aspects, right down to specific commands used in the various databases. And sometimes, unfortunately, the book falls short in the specifics.

For instance, in his lengthy chapter on CompuServe, Glossbrenner goes into detail about the use of the "GO" commands for navigating the system, and then lists page numbers for specific services in the system, such as the CB Simulation. But some of that information is outdated, and those page numbers either no longer exist or take the reader to an entirely different feature.

Now, to the publisher (and perhaps to the author of the press release), these errors may be no more serious than typos. However, the reader who follows the book's instructions will experience the very frustration the author works so diligently to prevent.

If this handbook goes into a second printing, perhaps the time will be taken to at least correct the errors in some of the specifics. The publisher should take into account that all the databases are changing rapidly and avoid tips that might be outdated before the book is on the shelves.

As this kind of communications grows, we're going to need guides to being a good citizen of the Network Nation. This book is a beginning.

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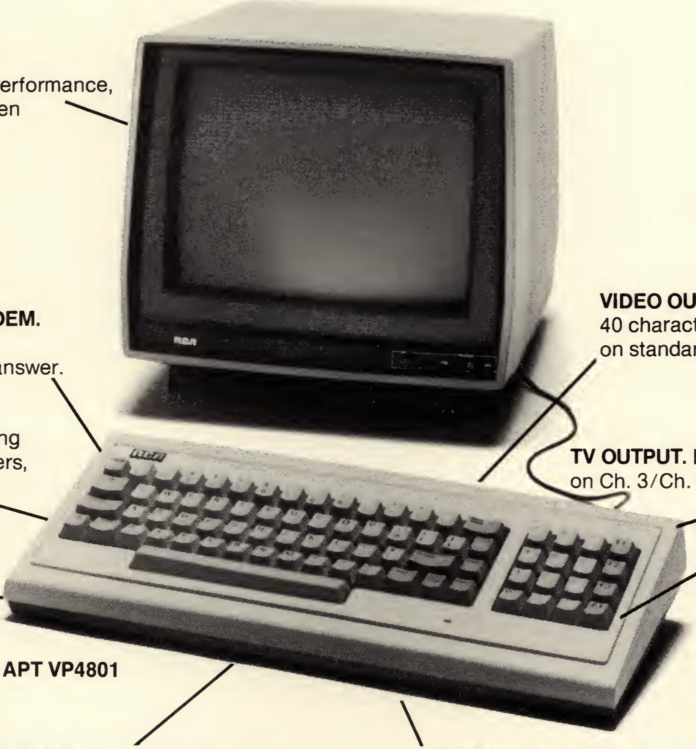

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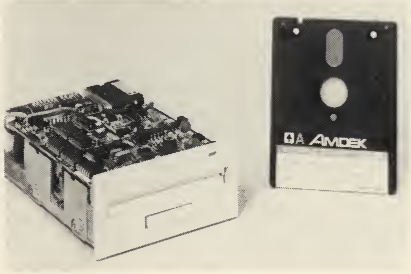

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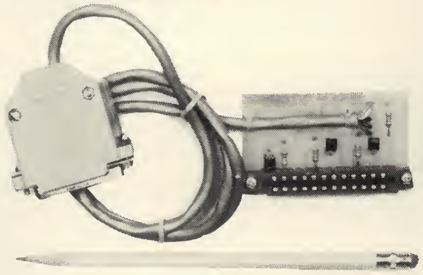

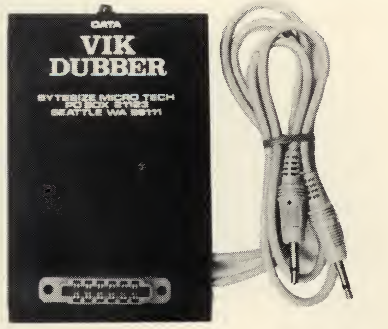

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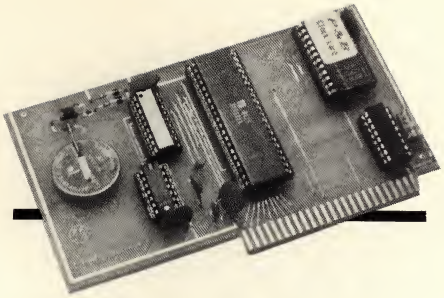
The Modem Interface offers users of these computers the cost saving convenience of connecting virtually any modem to their computer. It allows use of the modem's autodial/autoanswer features and comes complete with a free autodial terminal program. Also included with the Modem Interface, which retails for $21.95, is a three-foot cable with a standard DB25 connector.

The VIK-DUBBER cassette interface allows users to save and load data using any standard cassette recorder. The circuitry filters and enhances the cassette data, virtually eliminating bad loads.

Two cassette recorders can be connected to make high quality backup copies of cassette programs. In addition, the VIK-DUBBER has an indicator light and quiet audible tone to help the user adjust the cassette volume for proper use, as well as allowing him to monitor the cassette data. The product, which sells for $34.95, gets its power from the computer, so no batteries are required.

For information, contact Bytesize Micro Technology, P.O. Box 21123, Dept. DU, Seattle, WA 98111.



DAT-A-CLOCK

P & B Research Consultants have introduced the dat-a-clock© multi-function plug-in card for use with the Apple II, Apple II Plus and Apple IIe computers.

Easy to use, the dat-a-clock has date, month and year capability, and the onboard battery has two to three year life.

The dat-a-clock can be purchased fully assembled for $85 or in a kit with easy to follow assembly instructions for $55. For information, contact P & B Research Consultants, 231 East Grand Blvd., Detroit, MI 48207.

CATCHWORD

Catchword™ is the latest word game for Spinnaker Software Corporation. Designed for one to four players, the game is fast-paced with a variety of skill levels.

Anyone who can spell can play Catchword. The basic idea is to make words from letters that appear on an ever-changing rotating alphabet block. The computer becomes an intelligent game board, offering a new approach to multi-player games.

For information, contact Spinnaker Software Corporation, 215 First St., Cambridge, MA 02412.

HYPERTYPER

Are your microcomputing or word processing skills hindered by the hunt-and-peck technique of typing? The essential prerequisite to computer literacy is typing fluency, and HyperTyper is a typing aid that will offer just that.

It can be used by the new home computer user who may need to brush up on typing skills, by children who are just learning to type, in introductory computer courses, in the personnel office for typing tests, or in the word processing department for practice drills.

HyperTyper sells for $49.95. For information, contact Digital Marketing Corporation, 2363 Boulevard Circle, Suite 8, Walnut Creek, CA 94595.

VOICEDRIVE

SuperSoft has introduced a unique interface for microcomputer users: voice recognition. VoiceDrive is a voice recognition software interface for use with ScratchPad, SuperSoft's financial spreadsheet.

The electronic spreadsheet can be used without even touching the keyboard, but rather by simply speaking to the computer. Give commands, enter data, perform "what if" analyses — just by talking to the system. The keyboard and speech may be intermixed.

ScratchPad with VoiceDrive retails for $495. For information, contact SuperSoft, Inc., 1713 S. Neil St., P.O. Box 1628, Champaign, IL 61820.

SMARTBOARD RC-100

Automatic Micro, Inc. announces the Smartboard RC-100, its first in a line of products designed for computerized control applications in industry and private homes.

The first such design specifically for the S-100 computer, Smartboard RC-100 allows reliable and flexible control and state checking of remote relay switches. Integration of the relay control function in the computer chassis gives the system designer greater flexibility and a reduction in total system cost over systems which require a separate stand-alone unit for relay control and monitoring.

Smartboard RC-100 applications include on/off control and status reporting of lighting, appliances, electrically controlled heating and cooling devices or entire electrical circuits. Industrial uses encompass instrument, process, production and environmental control and status checking or any application where electrical devices can be controlled by computer.

Complete control of all features is possible with a simple BASIC control program. An external 2716 or 2732 EPROM allows custom programming of the on-board CPU for application flexibility. Application software examples are included with complete documentation. The Smartboard retails for $495. For more information write to Automatic Micro, P.O. Box 20007, Columbus, OH 43220. 614/766-0670.

FLIPTRACK LEARNING SYSTEMS

Is your new Apple III computer difficult to operate? FlipTrack Learning Systems can help with its new audio cassette tutorial, *How to Operate the Apple III.*

The program includes four audio cassettes, one program diskette and a fully-indexed operator's guide. Designed for the first-time computer user, this "hands-on" cassette course stresses learning by doing — at the learner's pace and convenience with computers. Operators are instructed in all phases of the computer's operation — from set-up through full implementation. It sells for $95.

A full-color training catalog, which features the company's six audio cassette courses for the IBM PC, Apple II and Apple III computers plus tutorials on VisiCalc, WordStar and the CP/M operating system, is available free upon request.

For information or catalog, contact FlipTrack Learning Systems, 526 N. Main St., P.O. Box 711, Glen Ellyn, IL 60137.

GUIDE TO HOME BANKING

Banking at home is more than just a futuristic dream, as this service is being offered in key U.S. cities. A new book, *A Guide to Home Banking Activities*, profiles both pilot and commercially available systems operating in financial institutions throughout the United States.

The most comprehensive resource available on home banking activities, the book features information on systems operators, the financial institutions, including principal equipment and manufacturer, service provider, delivery method, protocol, and functions available, as well as on the hardware and software manufacturers.

This reference work sells for $50 and is available from E.F.T. Executives' Directory, P.O. Box 3732, San Rafael, CA 94912.

WORKING MOTHER'S DILEMMA

Working mothers can turn their sometimes harried lives into a game — played on the computer, that is — in Working Mother's Dilemma™.

"Mad Dash" tests the player's ability to race through the house without a break, while "Carfool" demands figuring out how to use the least amount of gas while running errands all over town.

"The Harried Housewife" adventure game rewards the successful player with a hot bath and a nap after a hectic day that includes a dazed search for the car in the parking lot of "Shopping Mall."

It retails for $14.95. For information, contact 2-Bit Software, P.O. Box 2036, Del Mar, CA 92041.

PC MODEL PLUS COMMUNICATIONS SYSTEM

The PC Model Plus™, a communications system designed for the IBM PC, is new from Ven-Tel, Inc.

The system retails for $389 and contains everything needed to communicate with independent information services, such as CompuServe, Dow Jones News Retrieval and The Source, as well as send electronic mail.

Everything comes in one box: a microprocessor-based, auto-answer/auto-dial 300 baud modem complete with a buffer, an extra serial port and high speed expandability; Crosstalk™ communications software; complete instructions and a standard modular phone cable. The modem is expandable to 1200 baud full duplex (212-A compatible) communications with the addition of the PC Modem Speed Adapter™.

For information, contact Ven-Tel, Inc., 2342 Walsh Ave., Santa Clara, CA 95051.

NEW FROM TELEMAX

Telemax Inc., has several new products for computer users who are interested in expanding their systems.

Apple IIe users may want to check out the RGB Color Board, a video board that provides the computer with RGB (red/green/blue) video signals that enhance the resolution and color quality of the supplied composite video.

The board can be used with 80 column text so that the color graphics and text are displayed on one RGB monitor. In addition, each text line can be set to any one of eight colors on any of eight colors of backgrounds. The unit retails for $169.

New for the IBM PC is an RGB interface for use with Sony Profeel Monitors. It provides a 16 color display and supports 80 x 25 character text. The interface includes an eight-foot cable assembly with mating connectors and associated electronics. It sells for $99.

New for general computer use is a video activated power switch for remote video monitors. The switch detects horizontal SYNC from the video signal to turn the monitor or other device on. In the absence of a video signal, the monitor or other device turns off. The unit retails for $99.

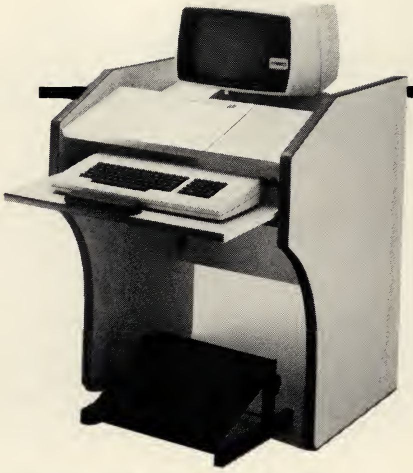
For information, contact Telemax, Inc., 780 Lorraine Dr., P.O. Box 339, Warrington, PA 18976.

ELECTRONIC SPECIALISTS CATALOG

Electronic Specialists has published a catalog of its line of computer interference control products which includes equipment isolators, AC power line filter/suppressors, line voltage regulators and AC power interrupters.

Descriptive sections are included, outlining particular computer problems and suggested solutions. Typical applications and uses are highlighted.

Request catalog 831 from Electronic Specialists, Inc., 171 S. Main St., Natick, MA 01760.



SYSTEMATE TERMINAL STAND

The SysteMate terminal stand, designed ergonomically, is a new product from Viking Acoustical Corporation.

Features of this modern worksystem include a multi-adjustable CRT top, which allows the operator to position the CRT for optimum visual and bodily comfort, a built-in adjustable copyholder and a retractable keyboard pad. It is designed to fit most all word and data processing terminals.

For information, contact Viking Acoustical Corporation, Airlake Industrial park, Lakeville, MN 55044.

WALL STREET COMPUTER REVIEW

Wall Street Computer Review, the only magazine aimed directly to the securities industry about computers, recently began publication.

This monthly magazine is edited for the investment professional who wants to know what is available in computer, office automation and software products, and how to use these products to improve performance. Each issue contains stories on personal computers, software, databases, office automation and telecommunications, back office data processing issues, industry trends and innovative applications of new products.

For information, contact Dealer's Digest, Inc., 150 Broadway, New York, NY 10038.

R.C. Morse

LOOKING AT DUTCH VIDEOTEX

Last month we began to look at CEPT, the standard of the European community. We discussed its graphic protocol and touched on its relationship with North American standards. This month we will examine it through the experience of videotex in the Netherlands.

One of Europe's "low countries" (situated below sea level), Holland is the most densely populated country in Europe, with 343 inhabitants per square kilometer — compared with 22 in the United States. Situated on the North Sea, Holland has always been involved in shipping and trading, and has gained a reputation for serving as a gateway to Europe.

The Dutch PTT launched a public videotex service in 1979. The service, based on the Prestel standard, was called Viditel (vidi = I have seen, tel = by telephone). As in other European countries, videotex was perceived as a way to increase telephone usage, especially in Holland where telephone density is extremely high — 112 subscribers per square kilometer.

In less than four years, Viditel has grown into a formidable service. According to R.C. Meyburg, Viditel product manager, the service now has some 7,000 users throughout the country. Currently, there are about 25,000 pages of information on the service, provided by some 500 information providers (IP). Of the 500 IPs, about one-fourth act as umbrella IPs, the rest sub-IPs renting or leasing pages from the umbrella IPs.

The Viditel database is basically replicated on two GEC computers located in Amsterdam and The Hague, with a gateway connection between them for retrieval of non-replicated, or region-specific, information.

Holland was one of the first countries to implement the ability for gateway (called Vidipoort). The service was fist introduced into Viditel in April 1982. This facility allows for such functions as mortgage calculation and tax preparation. It is made possible via the country's packet switching network, Datanet 1.

Unlike Britain where Prestel was supposed to be a consumer medium, Viditel was conceived as a business service. Accordingly, most of the information on the system was directly related to business, including financial information, exchange rates, stocks, bonds, notes and commodities, contractural information, shipping and airline data and schedules, and other such information needed in both national and international business.

Banking is not yet a part of the Vidipoort capability because the primary means for payment on videotex is through credit cards. As J. G. de Bruyn, consultant to the Royal Dutch Tourist Organization, points out: "We don't use credit cards in Holland as you do in the U.S. and U.K." Since this means of payment for transactional services is virtualy non-existent, the role of banks in Viditel, apart from providing information, has been limited. In the future, banks will offer real-time, on-line facilities via the Vidipoort connection, expanding banking and telebanking to a more important part of the overall service.

According to Meyburg, development of Viditel is proceeding rapidly with further applications made possible by Vidipoort. Although the primary users of Viditel are businessmen and most Viditel terminals are located in offices, as in the United Kingdom, usage is moving into the homes. And while there are currently no plans to transform the service from a business to a consumer orientation, there are increasingly more consumer applications and databases appearing on the service. For example, Vidipoort allows teleshopping with Holland's leading mail order houses and department stores. For retailers, Viditel means an extension of normal shopping hours which are more strictly controlled in Holland than in the United States. Other teleshopping applications, such as ordering theater tickets, make use of response pages rather than Vidipoort connections per se. The travel industry in Holland is now trying to set itself up on the system so reservations can be made directly over Viditel.

Another feature of the service is email and emessaging through what the Dutch call Vidibus. Upon logging onto the system, subscribers are informed if there are any messages awaiting them. Although there is as yet no facility for direct user-to-user, real-time communication (such as CompuServe's CB), Meyburg indicates this is being considered.

In the future, Meyburg sees government itself becoming an IP, providing its own databases of information to users. Experiments are in progress for newer videotex applications, such as the downloading of telesoftware to personal computers. In many ways, the growth of Viditel has reflected the development of its model, Prestel. In the future, Viditel may become more of a public service like Bildschirmtext.

This year, the Dutch government will decide once and for all the actual status of Viditel. Currently run by the PTT, IPs regulate the data they put up on the system. The government has been deliberating whether to consider Viditel as a "broadcast" medium, with the government controlling the information flowing through the system. A similar question is being faced by other European countries.

The Dutch see videotex as another extension of the concept of Holland as the gateway to Europe — only now by electronic means. For this reason, they were among the first to endorse CEPT, and have gained the reputation as one of the standard's strongest supporters. As early as Videotex '82 (the industry trade show) in New York, the Dutch were passing out buttons reading: "One System, One Market" — the motto of the CEPT standards committee.

But lately, things have changed somewhat. The graphic question aside, the controversy regarding CEPT now seems to center on transmission coding. According to Sib Harland, secretary of the VNVI (the Dutch Videotex Industry Association), "It's very difficult to get clear information on CEPT. The Dutch PTT has made no decision yet, but is waiting to see what happens." Harland is refering to the seven-bit vs. eight-bit transmission coding structure.

Apparently, CEPT can be transmitted in either format. The Germans have chosen to implement CEPT in an eight-bit code, while British and French technology is more suited to a seven-bit code. The question now raging through Europe is whether to follow Germany with an eight-bit implementation, and possibly end up sticking their necks out, or to go with already produced seven-bit systems. According to Harland, "We were wondering whether we should make a choice now or wait and see which transmision code is adopted by set and terminal manufacturers. Because others aren't sure what to do yet, we're waiting for now. There should, however, be more clarity on the subject at Videotex '83 in Amsterdam this summer."

J. G. de Bruyn perceives the situation as a possible political power play by the West Germans to dominate the European videotex market. The way he sees it, "The Germans are a leading economic power in Europe. They stand to dominate Viditel's future by virtue of that power." Since Holland is geographically so close to Germany and economically dependent upon Germany for much of its own videotex equipment, Holland may very well be forced to go along with the eight-bit code. In the end, even Britain and France may have to bow to the eight-bit code or the result could be a divided Europe — incompatible with competing seven- and eight-bit systems operating on the standard that was conceived to be universal in its application (much like the current problem facing North America's NAPLPS with varying American and Canadian interpretations which are as yet incompatible).

The controversy will in the end be settled by the manufacturers building both chipsets and terminals. If an eight-bit code can't be displayed, then what about the roughly one million videotex terminals already in place in Europe? Will they become obsolete? Or will the manufacturers take steps to provide interface? Or will they build their terminals with capability for both — as with dual graphic capability? As Viditel's Meyburg points out: "CEPT has powerful features, and a single standard has its advantages. It's a standard that gives freedom for the future, but will depend on what chipset manufacturers and others do."

For now it's all up in the air, but much should be settled in discussions over the summer at Videotex '83. How the market ends up configuring itself will no doubt have an effect here in the United States at some point down the road. But for now, all we can do is wait and see which way the videotex winds blow in Europe.

This column is provided by ISIS — Internationally Syndicated Information Services, a New York City-based company specializing in new electronic media reporting, analysis, and consulting. This column is composed on an RCA VP3501 Videotex Data Terminal.

THE PROGRAMMER

Continued from page 38

remains a worthwhile investment for BASIC programmers since even if editing is required, preparation of the "core program" is made easier.

At present, The Programmer is available for the IBM PC and Apple II computers. In the latter case, separate versions are available for Applesoft and the CP/M based Microsoft BASIC-80 (MBASIC or GBASIC). All versions are priced at $199.95 (reduced from the original price of $495.00). Additional information is available from Howard W. Sams & Co. Inc., 4300 West 62nd Street, P.O. Box 7092, Indianapolis, IN 46206. Information may be obtained by calling (317) 298-5400, and orders may be placed toll-free at 1-800-428-3696.

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Ernest E. Mau is a technical consultant and free-lance writer from Denver.

Coming in the August Issue of TODAY

Newspapers and Videotex

TODAY takes a look at American and European newspapers and news services that are using videotex to take a step into the future.

Electronic Publishing

"It's the wave of the future!" cry technologically-secure proponents. "You can't curl up with a good computer," snipe technophobic traditionalists. What will happen to our libaries? Who will publish our books? How will it affect our lifestyles? Get a perspective on these questions and more when TODAY takes an overview of the world of electronic publishing.

The Ups and Downs of Database Downloading

Database downloading is rapidly becoming a hot issue in the on-line information world. With individual users gaining more processing and storage capabilities, the large on-line database services are coming to grips with new problems. TODAY will examine the issues, the costs and even some of the "how-to's" of this sensitive and complex subject.

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